Amateur Radio

Volume 78
Number 8
August 2010
Price: $7 incl GST
www.wia.org.au

100 YEARS 1910 ~ 2010 WIRELESS INSTITUTE OF AUSTRALIA

August is 'on the air' time

21-22 ILLW 2010

And two big contests

14-15 Remembrance Day

28-29 ALARA Contest

Digital ATV repeater VK3RTV

Going mobile

Build a PIC Morse keyer

A 'basic' trap for young players

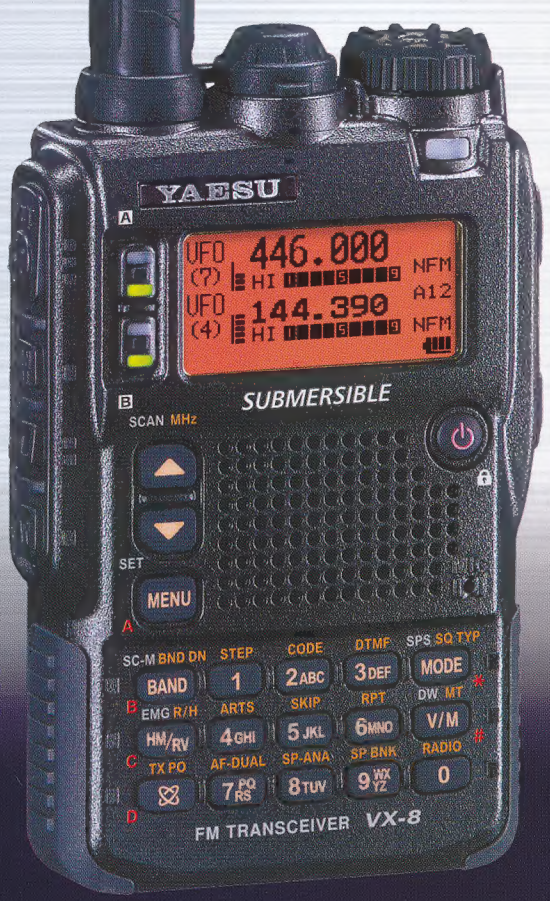
ISSN 0002-6859

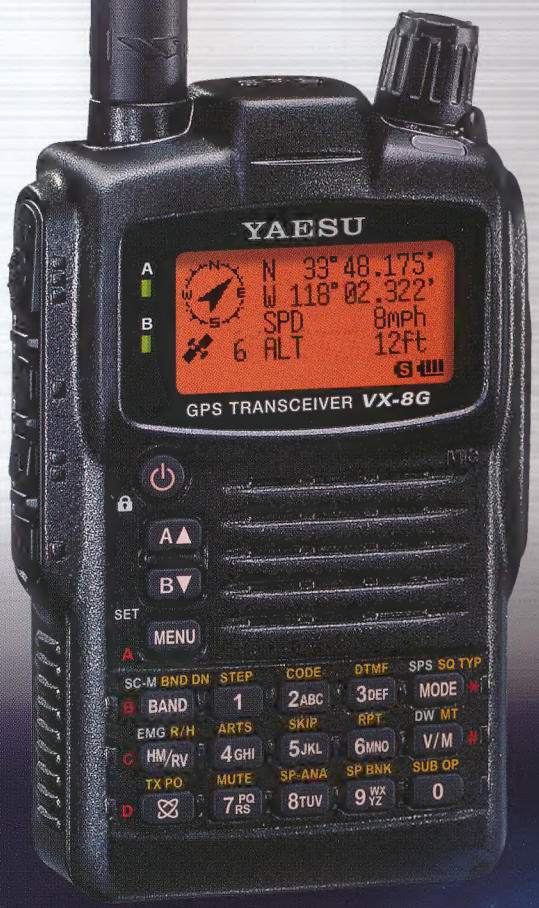
Celebrating the centenary of organised amateur radio in Australia

YAESU

A TECHNOLOGY BREAKTHROUGH

THE NEW PRESTIGIOUS COMPACT RADIO WITH APRS





VX-8DR/E

VX-8GR/E

Visit Us At The
Perth Hamfest 1st August
&
Blue Mountains Winterfest 22nd August

Vertex Standard (Australia) Pty Ltd
Normanby Business Park, 14/45 Normanby Road
Notting Hill 3168, Victoria, Australia
Telephone: (03) 9518 2100
http://www.vxstd.com.au

Amateur Radio

Volume 78, Number 8

August 2010

The Journal of the Wireless Institute of Australia

ISSN 0002-6859

GENERAL

The Targa Wrest Point 2010 rally 20
Roger Nichols VK7ARN

Tallyho at Mt Gambier 28
Andrew McKinnis VK5KET

ILLW 2009 A weekend to explore (Cover Story) 34
Glenn Alford VK3ILH

GippsTech 2010 – another successful year 42
Peter Freeman VK3PF

Gridsquare Standings at 11 June 2010 52
Guy Fletcher VK2KU

WIA Centenary Award 54

TECHNICAL

PIC Morse keyer using the PIC16F628A 5
Peter Wathen VK3EPW

Going mobile 8
Ross Pittard VK3CE

A basic trap for young players 11
Richard Cortis VK2XRC

The Melbourne digital ATV repeater VK3RTV Mt Dandenong 15
Peter Cossins VK3BFG

COLUMNS

ALARA ... 23
AMSAT ... 49
Contests (RULES) ... 43
DX - News & Views ... 48
Editorial ... 2
Hamads ... 54

News from:
VK2 ... 32
VK3 ... 33, 36,40
VK4 ... 25
VK5 AHARS ... 26
VK6 ... 30
VK7 ... 27
OTY ... 10,14
Silent Key ... 14
Spotlight On SWLing ... 51
VHF/UHF – An Expanding World ... 37
WIA Comment ... 3
WIA News ... 4

Our Cover

The well set up antenna farm at Cape Nelson Lighthouse near Portland during the International Lighthouse Lightship Weekend in 2009.

Story on page 34.

Photo by Glenn Alford VK3ILH.

Contributions to Amateur Radio
Amateur Radio is a forum for WIA members' amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are welcome and will be considered for publication. Articles attached to email are especially welcome. The WIA cannot be responsible for loss or damage to any material. Information on house style is available from the Editor.

Back Issues
Back issues are available directly from the WIA National Office (until stocks are exhausted), at $8.00 each (including postage within Australia) to members.

Photostat copies
If back issues are unavailable, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer
The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

100 YEARS 1910 - 2010 Wireless Institute of Australia

Editorial

Editor:
Peter Freeman VK3PF
editor-armag@wia.org.au

Technical Editor
Peter Gibson VK3AZL

Publications committee
Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Roper VK3BR
Ewen Templeton VK3OW
Ernie Walls VK3FM
Greg Williams VK3VT

All circulation matters
nationaloffice@wia.org.au

How to submit material
Secretary
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or armag@wia.org.au

Columns and letters to Editor
Editor AR Magazine
PO Box 273
Churchill Vic 3842
or
editor-armag@wia.org.au

Hamads
'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

Advertising
All enquiries to
Advertising Manager
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or
admanager@wia.org.au

Registered Office
Unit 20 11-13 Havelock Road
BAYSWATER VIC 3153
Australia
Phone: 03 9729 0400
Fax: 03 9729 7325

Production Deadlines
General articles, columns and advertising booking 1st day of previous month.
Hamads and advertising material 7th day of previous month.

The contents of *Amateur Radio* are Copyright Wireless Institute of Australia © 2010

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's oldest National Radio Society, founded 1910.

Representing

The Australian Amateur Radio Service

Member of the

International Amateur Radio Union

Registered Office of the WIA

Unit 20, 11-13 Havelock Road
Bayswater, Victoria, 3153
Tel: (03) 9729 0400 Fax (03) 9729 7325
email: nationaloffice@wia.org.au
http://www.wia.org.au

All mail to

PO Box 2042 BAYSWATER VIC 3153

Business hours: 10am – 4pm weekdays

National Office staff

Mal Brooks	Manager
Margaret Williams	Administration Officer
Dianne Ashton	Examination Officer

Board of Directors

President	Michael Owen	VK3KI
Vice-President	Ewan McLeod	VK4ERM
Secretary	Geoff Atkinson	VK3AFA
Treasurer	John Longayroux	VK3PZ
Members	Philip Adams	VK3JNI
	Bob Bristow	VK6POP
	Chris Platt	VK5CP
	Phil Wait	VK2ASD
	Peter Young	VK3MV

Coordinators

AMSAT	Paul Paradigm	VK2TXT
ARDF	Jack Bramham	VK3WWW
Australian ARISS	Tony Hutchison	VK5ZAI
Awards	Eddie de Young	VK4AN
Clubs	Ted Thrift	VK2ARA
Contests	Craig Edwards	
VK8PDXJohn Moyle Memorial Field Day		
	Denis Johnstone	VK4AE
Editor '*AR*'	Peter Freeman	VK3PF
EMC/EMR	Gilbert Hughes	VK1GH
	Keith Malcolm	VK1ZKM
Standards	Gilbert Hughes	VK1GH
	David Wardlaw	VK3ADW
	John Bishop	VK2ZOI
NTAC	John Martin	VK3KM
Historian	Will McGhie	VK6UU
IARU Region 3 Liaison		
	Geoff Atkinson	VK3AFA
Intruder Watch	Karl Hennig	VK6XW
International Travel Host		
	John Miller	VK3DJM
ITU Conference & Study Group		
	Gilbert Hughes	VK1GH
	David Wardlaw	VK3ADW
	Keith Malcolm	VK1ZKM
	Brett Dawson	VK2CBD
	Dale Hughes	VK1DSH
QSL Curator	National Office	
QSL Bureau & VK9/0 QSL Manager		
	Neil Penfold	VK6NE
Repeater	Peter Mill	VK3ZPP
Webpage	Robert Broomhead	VK3DN
Emergency Communications Group		
Coordinator	Phil Wait	VK2ASD
Members	Ewan McLeod	VK4ERM
	Peter Young	VK3MV

Editorial

Peter Freeman VK3PF

One busy month

Since writing the last Editorial, things have been hectic at the VK3PF QTH. Not the least of which has been a physical translocation! Yes, I have moved (more correctly, I am still moving...). Functionally, this means that I have extremely limited amateur communications capabilities at present. I am restricted to local FM contacts on 2 m and 70 cm bands for the moment, at least until I have some time to get better antennas erected. The new home is a bigger house on a bigger block, located right on the edge of Churchill. My neighbour to the north is a 20 hectare paddock which is part of a dairy farm.

Some of the local club members have been extremely helpful – last Saturday afternoon saw four of them arrive at the old location. In short order we had a stack of boxes loaded into a van and all of the external antennas dismantled and most loaded onto roof racks and moved to the new location. There is still a lot to be moved – 20 years of accumulated goodies (I can use that some time soon...., but still the items are awaiting attention!) to move. Then there is the Nally tower to lower. Once all is moved, I will need to plan carefully how to reassemble a station at the new address. Of course, under the regulations in force in Victoria, I will need to apply for a building permit to erect the Nally (and perhaps its "partner", currently in storage at a friend's home).

As if the formalities of finalisation of the house purchase and move were not enough, there have been examination papers to mark, a new semester requiring lots of preparation and GippsTech 2010 to coordinate and chair. One other task that needed attention was to organise this issue of *AR*.

August – what are your plans?

The month of August is potentially a busy one, depending upon your location. Ham fests are occurring in some locations. On a national scale, there are three key events.

The Remembrance Day Contest is a key national event, with the very detailed rules appearing in this issue. The key aim of this event is to commemorate the lives of amateurs who died during World War II and to promote friendly on-air participation.

Another event promoting friendly on-air participation is the International Lighthouse/Lightship Weekend – not a contest, it has its emphasis on participation.

There are sure to be other events occurring during the month, including more Clubs activating the VK100WIA special callsign. Do not forget to work as many Clubs as possible, together with WIA members, so that you can qualify for the WIA Centenary Award. Even if you do not qualify for the award, working the callsign will result in receipt of the special QSL card, provided you have made the appropriate arrangements with the Inwards QSL bureau.

The other key local event in August for all Australian amateurs is the ALARA Contest. For all the OMs out there, the goal is to work as many YL operators as possible. You can find the rules in this month's Contest column.

Plan ahead...

September will bring the Westlakes Cup (details also in the Contest column). October has two major events.

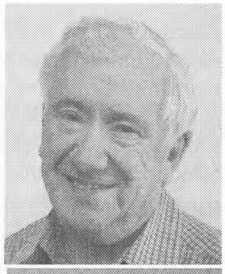
You should already be well into planning your participation in the annual Jamboree On The Air event. As this event is aimed at involving younger members of society, through the Guide and Scout movements, modern day regulations require that appropriate paperwork must be completed to ensure the safety of all. NOW is the time to make sure that all arrangements are well progressed and formalities close to completion.

One week after JOTA sees the first National Field Day, with its focus on establishing stations in the field, but at locations which will expose OUR hobby to the broader community. The rules for this event will be published shortly, but are still to be finalised as we go to press. Check the WIA website for further details – I hope that we will have more to report on this event next month.

Cheers, Peter VK3PF **ar**

WIA comment

" ... an event that promotes amateur radio in its community"



Michael Owen VK3KI

In the October 2009 issue of *Amateur Radio*, under the heading "Launching the WIA Centenary - A special call to radio clubs" I said this:

> "Clubs are asked to plan now how they are going to celebrate the centenary. The WIA hopes that each club (or perhaps a group of clubs) will conduct an event that promotes amateur radio in its community, and also celebrate the event for their members and perhaps others in the local community.
>
> These events may be part of an activity they already conduct, perhaps an annual hamfest. The use of the VK100WIA callsign may be in association with these events, or may be quite separate."

That phrase, "an event that promotes amateur radio in its community" has now been repeated many times.

Happily, many clubs or groups of individuals have used the Centenary as the catalyst for activities promoting amateur radio.

Each of the clubs using the WIA special callsign VK100WIA has been given a Media Kit, with a generic release to be adapted to meet local requirements, 'backgrounders' on amateur radio, the Centenary and the WIA and advice on how to use the kit.

Of course, anyone else wanting a copy of the kit has only to ask.

Let me mention a couple of examples I know of how this has all worked.

At the recent Caboolture Show David Brownsey VK4AFA and Mic Lohse VK4CRC set up a display that included a 1910 diathermy unit claimed to cure all diseases known to mankind and some not yet identified, a replica spark gap transmitter built by Al Shawsmith VK4SS, as well as a modern amateur transceiver, an active lap-top computer display of amateur satellites, plus the WIA's 'Calling CQ' and 'WIA Centenary' posters – with two knowledgeable radio amateurs on hand to answer questions.

The Oxley Region Amateur Radio Club decided to make its 35th Annual Field Day weekend at the Sea Scout Hall in Port Macquarie on 12 and 13 June 2010 the focus of its efforts to promote amateur radio in its community.

The club, using the Media Kit attracted two television items, three radio items including a 12 minute discussion on the ABC State Wide program heard throughout New South Wales as well as two newspaper articles promoting amateur radio and the Field Day.

Several people attracted by the publicity visited the Sea Scout Hall. The Oxley Region Amateur Radio Club will be conducting a training/ assessment weekend in the near future, and as a result of the publicity it is expected that the participants will include several people who otherwise would not have made contact with the club.

The Orange District Radio Club has been successful in obtaining local media publicity in the lead-up to three days of operating VK100WIA from Sunday 4 July 2010 with interviews on the local ABC, FM and AM radio stations.

A highlight was a story on Prime TV News.

In Hobart Justin Giles-Clark VK7TW of the Radio and Electronics Association of Southern Tasmania (REAST) did an in-studio 18 minute interview on ABC radio with presenter Chris Wisbey on a program heard throughout Tasmania.

Ten days before that, Justin was on the ABC Local in Hobart on the breakfast program with a five minute chat that attracted visitors to the REAST's VK100WIA display station.

And those are only some of the examples on which we could draw.

It is clear that many clubs have already responded to the challenge.

On Saturday 23 October 2010 the new WIA National Field day will provide yet another and different way for amateur radio to promote itself to the public, and perhaps a way for clubs that have yet to do anything to become involved in a way that is attractive to their members.

The National Field Day is described by the three amateurs who proposed and are now driving the project (Paul Hoffmann VK5PH, Fred Swainston VK3DAC and Gerard Rankin VK5ZQV) as follows:

> "The Foundation Licence and a revamped WIA have done much to bolster our numbers, but it is time that we make a concerted effort to better publicise amateur radio and all of its benefits. ... We need to re-introduce the general public to amateur radio, let them know a little of what it is about, without scaring them with too much technical jargon. Our public face will be on display, as well as our professionalism. ... The event is not intended to be a traditional contest, with isolated groups of operators sitting on remote hilltops. We wish to generate as much positive public exposure (and traffic on the bands) as possible."

In the rules (to be announced shortly) credit will be given for such things as site selection in an appropriate public place, the extent to which information is provided to the public, media publicity achieved as well as for contacts.

In all of this is the need to ensure that people who are attracted by publicity or what they see are approached, made welcome, provided with information and, so far as possible, followed up.

If people are attracted by what we are doing and then walk away not talking to anyone and not seeing what it is all about, one may just as well not have bothered at all.

ar

WIAnews

Amateur radio in ACMA newsletter

ACMAsphere is the ACMA's monthly newsletter, covering its activities in the fields of broadcasting, the internet, radiocommunications and telecommunications.

Page 16 of issue 53, June 2010 is devoted to amateur radio, primarily an article "Working with the amateur community to ensure spectrum integrity" but with a box highlighting the WIA centenary and quoting the ACMA Chairman Chris Chapman's address at the WIA dinner.

The main article discusses the recent cancellation of an amateur licence, previously reported by the WIA.

VK100WIA takes a step back in time

A very successful time was had by the Sunraysia Radio Club at the tri-annual Junction Rally where the Murray and Darling rivers meet at Wentworth. Vintage tractors and steam engines popped and chugged, while paddleboats cruised the rivers with organisers recording more than 3,000 visitors at the event.

VK100WIA was put on air and the sounds of the rally could be heard in the background during many of the QSOs made by operators from the Sunraysia Radio Group, with President Garry VK3KYF declaring it a great effort by all involved. Hundreds of people learnt about the Centenary of organised amateur radio in Australia and viewed a display of vintage radio items.

Good publicity included coverage in the Independent Star online newspaper and a mention on a local TV news sessions.

Another great WIA Supported Centenary Activity

Three Adelaide WIA members have secured a display space at a major public event. Adrian Snell VK5ZSN, Paul Hoffman VK5PH and Paul Schulz VK5FPAW have announced a new activity - *The Amateur Radio display at Science Alive! 2010,* August 7 and 8, Goyder Pavilion, Adelaide Showgrounds, Wayville. The event had 30,000 visitors last year.

The WIA Centenary Committee has endorsed the amateur radio presence at *Science Alive!* as the latest WIA Supported Centenary Activity.

In addition to *Science Alive!* the trio will mount a display on Friday August 6, at a High School Careers Day.

Prominent SARL Council member visits WIA office.

Hans van de Groenendaal ZS6AKV is a member of the South African Radio League Council, the SARL, with responsibility for Regulatory Affairs and Marketing and is also executive Chairman of the South African Amateur Radio Development Trust (SAARDT) and IARU Amateur Satellite Advisor. Hans recently visited the WIA office to meet with President Michael Owen VK3KI, Director Peter Young VK3MV, Manager Mal Brooks VK3FDSL and Secretary Geoff Atkinson VK3AFA.

SAARDT looks at various technologies and activities that drive amateur radio. SAARDT is dedicated to the development of amateur radio in South Africa with a special interest in the youth. The organisation is funded by donations and supports the SARL and SA AMSAT.

Sweet oranges and apples

The Orange District Radio Club has been highly successful in obtaining local media publicity for its involvement in the Centenary of Organised Amateur Radio in Australia. Club President Robert Alford VK2ZRJ advises that in the lead-up to three days of operating VK100WIA from Sunday the 4th of July, the club was interviewed on the local ABC, FM and AM radio stations.

A highlight was a great story on Prime TV News that obviously picked up a number of prompts from the WIA Media Kit and gave the Orange District Radio Club great publicity.

VK7TW Radio Star

The Radio and Electronics Association of Southern Tasmania (REAST) has done extremely well with two separate interviews on ABC radio. Justin Giles-Clark VK7TW did an 18 minute in-studio interview with presenter Chris Wisbey on a program heard throughout Tasmania.

Ten days earlier Justin was on the ABC Local in Hobart breakfast program for a five minute chat that attracted a number of visitors to the REAST VK100WIA display station.

WIA 600 metre CW beacon on air

With the recent granting of Scientific Licences to the WIA in the 505 to 515 kHz band, Drew Diamond VK3XU is now running a CW beacon on 507 kHz transmitting the call sign AX2VKW on Saturday and Sunday afternoons from approximately 1200 to 2100 EST hours (0200 to 1100 UTC).

This beacon has already been heard in Melbourne at -68 dBm (S9) with a stable level from day to night transition. Drew would appreciate reception reports.

First WIA Centenary Award issued

First to qualify for the WIA Centenary Award is John Fisher VK3DQ who was presented with his certificate by the WIA President, Michael Owen VK3KI. The award claim by VK3DQ had three contacts with VK100WIA, one with the WIA during May, then with the Wagga and Midland Amateur Radio Clubs in June, plus 14 WIA members to tally up the required 100 points.

VK100WIA QSL cards

As a result of the tremendous interest generated by the VK100WIA operations the WIA has received a number of enquiries regarding the distribution of QSL cards.

The WIA has elected to respond to each and every contact worked under the VK100WIA callsign by printing a unique QSL card. The cards for stations in Australia are sent to the Inwards QSL Bureau in each State and Territory for distribution.

WIA members who are not registered with their local QSL Bureau and who want to receive their VK100WIA QSL card should register now.

Those members who are registered with the Bureau will receive their VK100WIA cards through the normal distribution channels.

The undistributed cards will remain available for collection from the bureau managers in accordance with the procedures of those managers.

All amateurs are urged to read the QSL information on the WIA website.

ar

PIC Morse keyer using the PIC16F628A

Peter Wathen VK3EPW

This is a simple little weekend project that turned out to take just a little longer in reality.

I have used microprocessors in my home brew transceivers but I used the Z80, a good processor with a lot of instructions and flexibility. I learned assembly language programming of the Z80 in my apprenticeship and know it well. I wanted a change a while ago and made a few little projects up using the 80C31/32 micro controllers, including my external Morse keyer, still a little dated and a lot less exceptional than the Z80, as it uses less control circuitry making it slightly easier to implement for smaller projects.

PIC micro controllers have been around for a while now and I had been a little sick of hearing about them. I figured these should be my next challenge and as luck would have it not much of a challenge at that. A visit to the Microchip website found the MPLAB IDE software freely available; finally a manufacturer who wants to help people use their product, good stuff. MPLAB IDE is a Microchip development software package, and it has an assembler program in it that can be set up for most of the PIC micro controllers. (www.microchip.com and in the search box do a search for 'MPLAB IDE download', it should get you to the page where the download is available).

Many programmers are available for PICs. RS components sell some, Jaycar have one ready built and they also sell a kit that supports many different PICs. Circuits are available on the web of course. I chose the Jaycar kit because I want to play around with the different PICs later. The kit of course did not work but it had a great little test procedure in the instructions and with that procedure and the programming specifications for the 16F628A I was able to work out the design flaws. With not much more than a few component changes I ended up with a great little programmer that is now working 100 percent with the 16F628A.

Jaycar kit KC5467 'DSPIC30F/PIC Serial Programmer' modifications

For anyone who is also building the kit and having problems, I will include the changes I made:

- IC2 in the kit is a 74LS04. I changed this to a 74HC04, as the HC series has much better output levels and they tend to be closer to 5 volts and 0 volts.
- D3, which connected the output of the IC2f to the PGD (program data line) is removed and replaced with a 1k0 resistor. This provides a load for when the PIC is being read.
- The 2k2 pull up resistor that is attached to the PGD and the anode of D3 is changed to a 10k resistor. This means in program mode a 0 from the IC2f gate will put 0.5 V on the PIC.
- Where the PGD line goes directly to pin 8 of the serial connector (CON2) I cut the track and inserted a 470 Ohm resistor. This is just for added protection to both the PIC and the 74HC04.
- Finally the kit has PGD and PGC lines shown with a 39 Ohm resistor and a 22 pF capacitor for high frequency filtering but when I was researching on the web (WinPic programmer FAQs), I found that the original modification suggested a 100 Ohm resistor and 47 pF capacitors. I only had 150 Ohm resistors on hand so I replaced the 39 Ohm resistors with them and replaced the 22pF capacitors with some surface mount 47pF 1206 capacitors.

The most amazing part of the kit circuit was that a 74LS04 output was connected to the bi- directional (input/output) PGD pin of the PIC through a 1N4007 diode and a 39 ohm

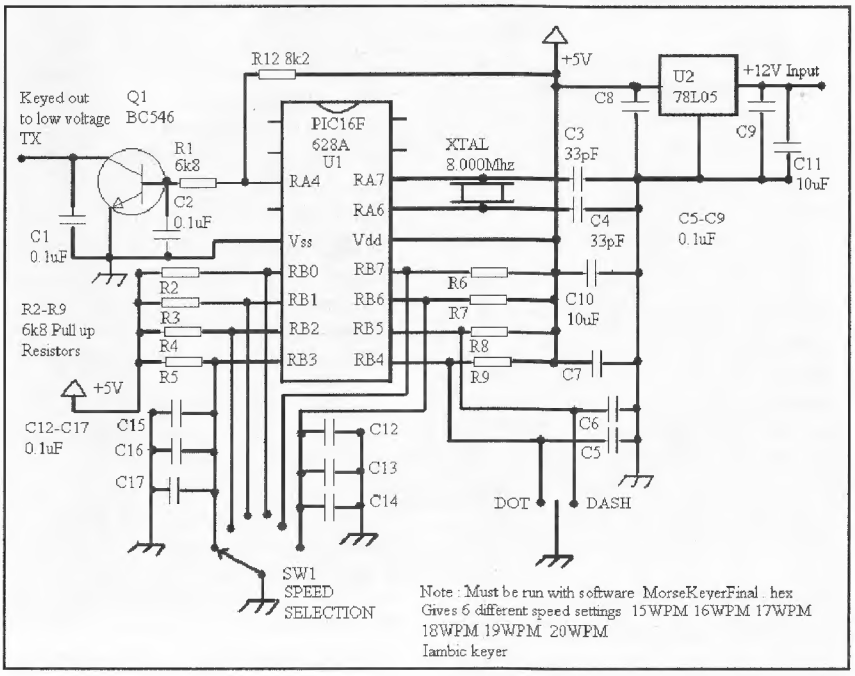


Figure 1: The circuit diagram of the PIC16F628A Morse keyer.

resistor; any wonder I could not seem to read the contents of the PIC with the original circuit. All is now fixed and working properly. I wrote those changes on a circuit and handed them to a young shop assistant at Jaycar, explaining all the reasons for the modifications and asked him to pass them on to their kit department. Hopefully they will get there.

Software and more programmers

The kit uses WINPIC freeware from DL4YHF (http://www.qsl.net/dl4yhf/winpicpr.html) or do a Google search for Winpic. On his FAQs there are some circuits for much simpler PIC programmers which should be able to program this part. I have not tried those circuits but they look very cheap and easy to construct, so if you feel adventurous it could be a very low cost solution for this project.

Back to the project

Once I got that lot sorted out I got back to the Morse keyer. I chose the 16F628A because it is cheap and available. RS Components have them on their web site, Jaycar sell them, as do Farnell, certainly at the time of writing. I used the DIP18 package - I used a socket. The data sheet is available from the Microchip web site and it is quite large but when you are looking at using a micro controller like this one where many pins have two or three separate functions it is a must. I was caught by several traps in this IC.

My prototype was going to have four selectable speeds using RA0-RA3 pins as the inputs for the switch, from a rotary switch. That was my first mistake; in the data sheet it says 'When selected as comparator input, these pins will read '0's. I must be blind but I could not find the way to switch the comparator inputs so RA0-RA3 just did not work for me. I then decided that RB0, RB1, RB2, RB3, RB6 and RB7 would be OK and would let me have six selectable speeds. I have those pins tied to +5 V in the circuit; the software looks for the pin to be at 0 to select a speed. Note that the pins are tested in order so if more than one pin is at 0 then the first one tested will be the one to set the speed. I used a single pole six position switch to select the speed.

The next trick this IC had for me was the output bit; I selected RA4 to drive the base of a transistor. The software looked good but on test nothing was coming out of RA4. Looking at the data sheet revealed that RA4 just happened to be an open drain output, hence the added 8k2 pull up resistor you can see in the photo. RB4 and RB5 were selected as the inputs for the paddle, again 0 equals active.

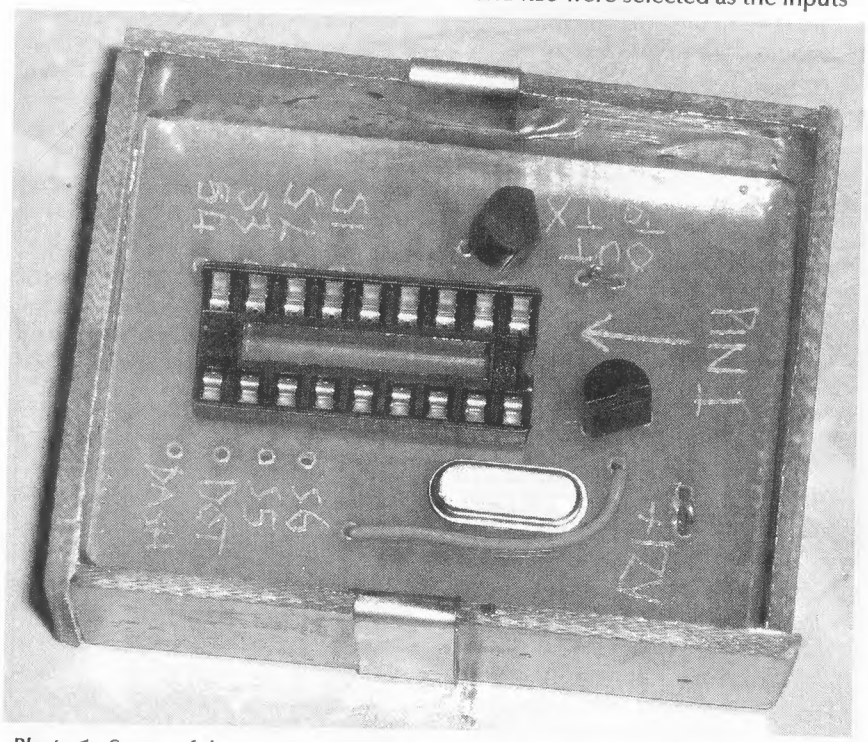


Photo 1: Some of the construction detail of the PIC Morse keyer – the socket for the DIP 18 package.

I have included the full assembly file for the keyer; if you follow the tutorial from the MPLAB IDE software you should get the idea. Select PIC16F628A as your device and then use Project Wizard. Enter the assembly code exactly as it is written. When you perform the build all operation, which hopefully comes up with the message 'build succeeded' then you should have created a hex file which can now be used by the WinPic software to be sent to your programmer. It is that easy. (The assembly file will be available for download from the *AR* page for this issue on the WIA website. Ed.)

Now for the program

I have a lot of notes next to the programming which should make it pretty clear how the software is working but the short list is here. Refer also to Reference 1, below.

First set up the control registers and set the value in the LASTCHR register, this is the memory of the last character sent, and it is used for the iambic function. That is, whatever character was sent last when both keys are squeezed together the next character will be the opposite. The program loop now starts. The first part is to check what speed bit is selected and set the necessary value in the WPM and TWPM registers. The WPM is the fixed copy of the selected speed value and the TWPM is the temporary copy which is altered as countdown is done. Once the speed has been set then the loop moves on to check if a paddle or both paddles are down; if neither are down then the loop goes back to the speed setting and repeats. When a paddle is down, depending on which one is down the program jumps to the DOT or DASH routines.

The routines are similar, first they put a value in the LASTCHR register, then they set RA4 to 5 volts driving the base of the output transistor. The timer 0 register is set to 5 and the timer 0 overflow flag is cleared. Note that the prescaler has been set to divide by 8 and assigned to timer 0. Timer 0 will now increment from 5 to 255 then the overflow flag will be set. With an 8 MHz clock this should equal 1 mS. The WPM and TWPM registers have the count needed

for this loop to be repeated for the correct speed setting. In DASH three of these timing loops are performed, that is, three dot periods, and in the DOT routine one loop is performed. The RA4 output is then set back to 0 and one more DOT loop is performed before returning to the start of the main loop. Easy.

The reason for the project was to get rid of my external keyer and make a very small keyer that would fit inside both of my current home brew transceivers. I built two of the circuits and they are now in their respective transceivers, working happily, and with no more leads hanging out the back of the transceivers. I also found the joy of using Flash (EE memory) micro controllers.

A few quick notes on the design and construction

The design uses a BC546 transistor to do the TX switching. I did this because both of my transceivers use a digital input for CW keying, 5 volts with a 470 ohm pull up resistor. If you are going to use this for an older transceiver with valves in the finals use the transistor to key a fast relay and use the contacts for the keying. If you want to you could use a much higher voltage, medium power transistor but that is up to you.

The circuits that I made were on a small PC board made with a Dalo Pen, a PCB marking pen. I used the PCB box type construction and in the photos you can see tin straps (from a Milo tin) on each side of the PCB; these are earth straps soldered to the inside PCB earth and they are used so that when all is wired up and tested a tin shield can be soldered over both top and bottom. From a Milo tin, of course!

The location of the software for the keyer program is noted under Reference 1, below.

Reference 1

Files used by MPLAB IDE software in ASM format (readable in MS Notepad) are available as File 1 on the WIA website under reference AR09072.

Files used by MPLAB IDE software in HEX format (readable in MS Notepad) are available as File 2 on the WIA website under reference AR09072.

ar

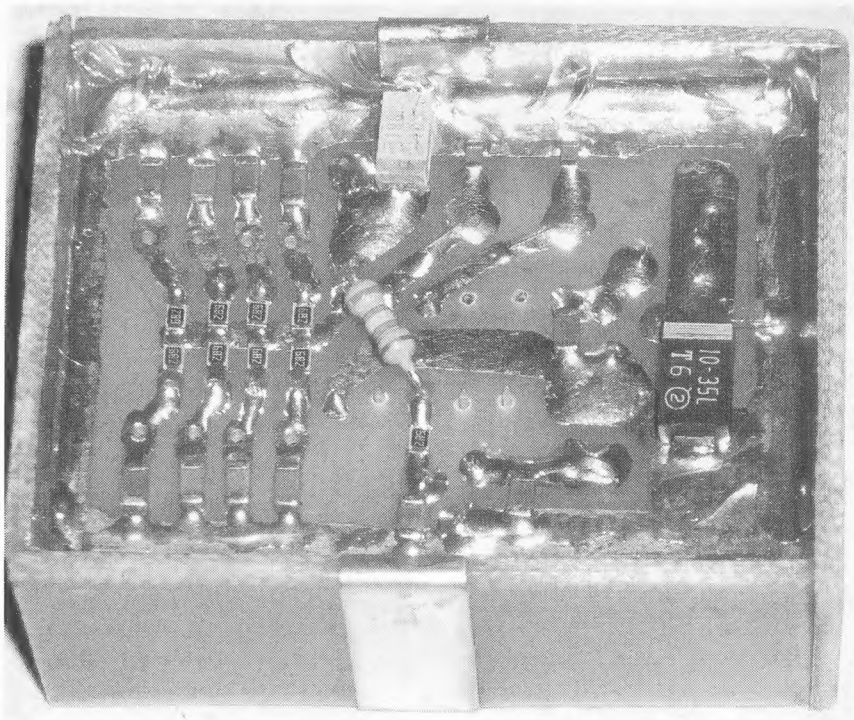


Photo 2: Further construction detail of the PIC Morse keyer – the 'other side' of the DIP 18 package showing component placement.

COM-AN-TENNA

Australian made antennas setting a new standard

Telescopic tube mast, portable or fixed, with winch, from 3 to 11 metres	Call
10/11 m, 5/8 vertical, 60 mm base	$255
Triband Yagi, 10/15/20 m, 6 element	$860
20 m Yagi, for confined spaces	$439
20 m Yagi, 4 element, com/opt	$702
2 m Yagi, broadband, 12 dBi, 144-148 MHz	$225
2 m vertical, 2 x 5/8 co-linear	$135
Log periodic, 9 element, 13/30 m, 8.5 m boom	$1,130
160 m vertical, suburban, **NEW**	$355
Multiband vertical, 10/80 m, auto switch	$360
40 m Yagi, 2 element, linear loaded, cap hats	$645
20 m Quad, 2 element	$579
6 m Yagi, 6 element, 50/54 MHz	$384
2 m/70 cm Yagi, 10/17 element, single feed, NBS design, **NEW**	$283
26-29 MHz Yagi, dual drive, 3 element	$270
70 cm Yagi, high gain, 3 metre boom	$159
2 m Yagi, high gain, 13 element, 6 m boom	$245

Guyed masts
13 or 21 metres
Winch up, tilt-over, aluminium and stainless steel three sided construction. Auto brake winches.

Free standing masts
to 9.5 metres

New baluns
1-1 to 16-1, to 3 kW.

115 John Street
Glenroy VIC 3046

Phone 03 9773 3271
or
0419 542 437

Foundation Corner 10

Going mobile

Ross Pittard VK3CE
vk3ce@amateurradio.com.au

The first truly mobile two-way radio was developed in Australia in 1923 by Senior Constable Frederick Downie of the Victoria Police.

The Victoria Police were the first in the world to use wireless communication in cars, putting an end to the inefficient status reports via public telephone boxes which had been used until that time. The first sets took up the entire back seat of the patrol car (1). It was always a challenge going radio mobile with the large valve operated radios and accompanying power supplies.

Fortunately these days it is relatively easy to operate mobile with the large number of compact rigs available on the market. There are, however, a few basic points needed to be observed to obtain maximum performance when setting up your mobile station.

Try if at all possible to keep your antenna cable out of the engine compartment to reduce the pickup of interference from the ignition system. Always use good quality coax cable in the car as it must withstand continuous vibration, and use a cable with a multi strand centre conductor and a good quality shield. Usually the cheaper coax has less copper which means poor outer braid coverage.

I run a separate cable directly from the radio to the vehicle battery and fuse it at both ends. If the vehicle battery is in the engine compartment I find it a good idea to use a piece of RG8/213 as my power lead. I use the inner as the positive and the outer shield of the coax as the negative and this helps with reducing interference pick up from the engine bay.

When operating HF mobile ground the exhaust pipe at the back of the vehicle, this reduces interference from the engine as the exhaust makes a good antenna, as it is suspended from the car by rubber shock mounts. The best way to achieve this is to use a piece of earth braid and strap between the exhaust and a suitable point on the vehicle chassis. Check to make sure the engine is also connected to the chassis by a good braid; remember that the engine sits on rubber mounts too!

Earth braid with lugs can usually be purchased new from Repco or Autobarn, second hand from a motor wrecker or you can make your own by stripping the inner from a piece of RG8/213 and flattening the outer braid.

A popular mounting place for HF antennas on sedans is the tow bar on the rear of the vehicle; the problem with modern tow bars is the tongue is usually removable; these can be used provided another good braid is bonded between the removable tongue and the chassis.

Modern cars seem to have smaller cable harnesses running around the

Photo 1: Two commercial dual band antennas.

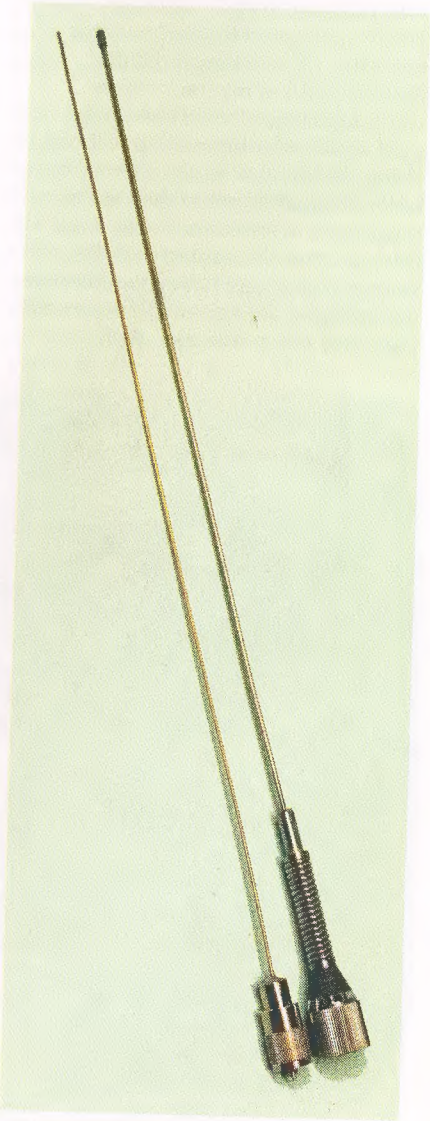


Photo 2: *Homebrew 2 metre mobile antenna beside a commercial model.*

interior due mainly to the advent of microprocessors that do most of the vehicle housekeeping. I have found fewer problems in these cars than some of the older models although it is always possible to get a birdie out of a microprocessor. One example of this was a fearsome interference on the 80 metre band coming from my Garmin dash-mounted GPS; no amount of fiddling cured it, so when I work 80 metres the Garmin gets switched off. The later windscreen mounted models do not appear to be as much of a problem.

Before dismantling dashboards or removing seats to run the cables to your new installation, it is good policy to disconnect the battery cable as modern cars have airbags mounted in the dash and various sensors hidden in the doors and seats to set off side impact airbags. I always consult the workshop manual or perhaps ask the local dealer of the location of the sensors and bags. When your installation is complete, reconnect the battery and see what happens; there is usually a boot sequence that modern computer controlled cars go through when power is reapplied to the system. The first time you transmit, particularly on HF, try standing outside the car as it is not unknown for a large dose of RF to set off the air bags!

Photo 3: *Close up of the homebrew base on the antenna shown in Photo 2.*

VHF/UHF Antennas

All the major antenna manufacturers have a range of mobile antennas either as mono, dual or tri band. Mounting has been simplified over the years and most commercial antennas now use a PL259 plug end. This also makes it very simple to build your own and mount it in a PL259 plug. The one shown is a quarter wave 2 metre antenna made from bronze brazing rod soldered into a PL259 and then sealed with silicon. The rod should be 480 mm from the top of connecter to the tip. This makes a simple but effective 2 metre mobile antenna for mobile use or just as a spare to keep in the boot for emergencies. I purchased my 1.6 mm bronze welding rods from BOC Industrial Gas.

HF Antennas

All mobile antennas for the HF bands employ some form of loading to increase their electrical length and they can be broadly placed into three categories: single band, multi band tapped and multi band auto tune. An important point to remember with all HF loaded antennas is the need for some form of ATU if you wish to operate across the entire band.

Photo 4: *The FAMPARC HF whip shown mounted on a vehicle.*

The most common is the single band helical whip which many will remember from CB days. This style of antenna can be purchased ready-made on any amateur band. Some dealers will supply a set of whips to cover all amateur bands, usually at a discount to single sales. It is possible to make helical antennas and there is an excellent site (2) which has a number of programs devoted to the design of loading coils. The late G4FGQ produced a large number of programs to enable amateurs to design and experiment with all types of loaded antennas. I recommend these programs to anyone interested in HF antenna design.

There are a number of locally built multi band antennas available, including the Outbacker (4) and the Bushcomm range (5). A popular amateur-made antenna is the FAMPARC (3) tapped antenna; it sells for around $100 and the guys from

Photo 5: *A Codan base unit and its whip lying beside a FAMPARC HF whip to show relative size. Note the earth braid on the Codan base; the pavers are 30 cm square.*

FAMPARC can be found at most swap meets in Victoria. The whip comes in two models 80/40/20/15/10 or 80/40/30/20/17/15/12/10. I understand they also cater for other frequencies, but for any further information contact the club.

The major drawback with the two types of HF antennas already discussed is that when changing bands you have to stop the car and either change the whip, or the tap on the antenna. For those of us who enjoy a more sedentary style of motoring there is a solution, the screwdriver or auto tune antenna. These antennas have a large base coil with a small motor that drives a contact up and down the coil to get the best tuning point. Early homebrew amateur models used a battery operated screwdriver motor to drive the tap and thus came its name. As they are continuously adjustable an ATU is not necessary; when changing frequency all that is done is run the motor up or down for maximum noise on receive and the antenna should be tuned.

There are a number of major antenna manufacturers that market a screwdriver antenna as well as amateur models and plenty of designs on the net to build your own. Maurie VK2CD (6) has been selling an amateur built screwdriver antenna for some time and those of you who attend the Wyong Field Day will no doubt remember having seen Maurie demonstrating his wares. A popular commercial brand sold in Australia is the High Sierra range (7); there are a number of control boxes that will interface between the High Sierra range and common rigs to make changing bands as easy as possible.

A locally made product is, of course, the Codan 9350 auto tune antenna; while expensive new, these are increasingly becoming available on eBay and some four wheel drive sites second hand. Beware of the earlier Codan 8558, as these are quite old and parts are increasingly difficult to obtain. The main difference between the Codan and amateur screwdriver antennas is the Codan incorporates built in electronics to monitor and tune the aerial for best SWR for the frequency you are currently using. If you own a radio from the IC-706 family, there is a simple interface to the Icom ATU plug on the rear of the rig.

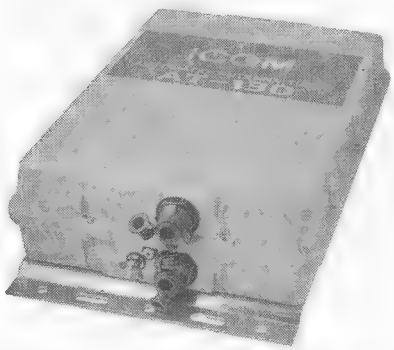


Photo 6: *The Icom AT-130 automatic antenna tuning unit.*

A slightly different approach is the Barrett auto tune antenna; while it looks similar in appearance to the Codan, internally it uses lumped inductance and capacitance to tune the whip instead of the motor driven coil. These are similar in price to the Codan new and are also becoming available on the second hand four wheel drive market.

An alternative to the screwdriver is to use a base loaded ATU such as the Icom AT-130 or the SG-237 (8). Both of these ATUs will tune a whip or wire antenna but when feeding a whip will have to be mounted as close as possible to the antenna and fed with a short piece of wire. This is because the impedance at this point is very high and is unsuitable for a coax feed. This setup will work quite well and enables band changing from the rig.

I hope this has given you some ideas for your mobile installation; that's it for this month, happy motoring.

References

Haldane, Robert. *(1995) The People's Force, A history of the Victoria Police.* Melbourne University Press. ISBN 0-522-84674-2 1995

http://www.zerobeat.net/G4FGQ/page3.html#S301%22

http://www.qsl.net/vk3frc/

http://www.outbacker.com.au/mobile_vehicle-77.php

http://www.bushcomm.com/index.php/products/whips

http://cust.idl.net.au/mp.jones/

http://www.andrewscom.com.au/site-section-01.htm

http://www.qsl.net/oe3mzc/sgc237.html

ar

OTY

Who were the RIs

Sir,

I read with interest the article by Rob Gurr VK5RG (Who were the Radio Inspectors? What did they do? - AR July 2010).

I developed an interest in radio in my early teens in Adelaide, and after discovering 160 m AM, had the intention of getting my ticket one day. After leaving school in the early 1970s my focus was on tertiary studies, and I strayed into the 27 MHz arena.

I purchased a pair of handhelds (and even licensed them), and experienced the fun and games on 27.240 MHz. Being somewhat naive I guess, I wrote to the PMG Radio Branch enquiring what licence covered what I was hearing.

A few days later Rob along with Alan Jordan arrived at the front door of my parent's house. Rob asked to see the handhelds (which I had fortunately not modified), and explained the 27.240 MHz situation.

I indicated my interest in amateur radio and showed them a couple of converted broadcast radios, one on 160 m, the other a SW set to which I had added a BFO, and a bunch of QSLs.

We talked about amateur radio for a while, then when leaving Rob told me to leave the transmitting experiments until I had my ticket, and wished me well with the studies.

That refocused my attention, and I later got my ticket.

Thanks for the nudge, Rob.

Damien VK3RX

vk3rx@wia.org.au

Do you have something to say about amateur radio.

It could be technical or structural or historical or theoretical or general or even polemical.

These pages are a geat place to 'say it'.

editor-armag@wia.org.au

A basic trap for young players

Richard Corbo VK2XRC

A couple of years ago my wife and I bought a second hand campervan with the intent of driving to Perth, doing some sight-seeing and then driving back to Sydney. Obviously, amateur radio had to be a part of this adventure. Because of the vast distances and relatively few major towns, VHF was not a viable option. We had to have a good HF system.

Time was limited for preparation so I attached a piece of galvanized pipe on the bull-bar with hose clamps and erected the Outbacker antenna on top of the piece of pipe. This system worked adequately for the trip across to Perth and some travelling around in Western Australia. However, the problem was that I like to listen around on forty metres and log in on the travellers' nets on 21.185 MHz and on 14.116 MHz, which meant changing frequency. With the Outbacker, one has to stop, change the lead plug position and then retune the stub. Although I got quite good at it, my wife soon tired of having to stop just so I could play radios. Accordingly, some other system had to be developed.

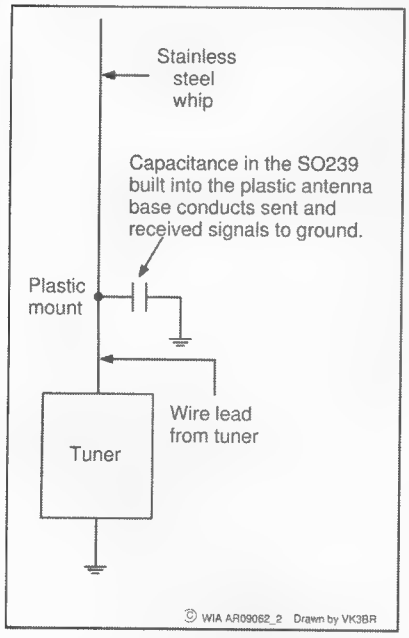


Figure 1: Indicative diagram of antenna mounting containing a capacitive trap to short circuit signals to ground.

I attempted to overcome the tuning problem by reducing the stopping time to simply changing the lead position and then using a manual tuner in the cabin to affect a better tune. This system did not work very well at all and was soon abandoned. The next step was to purchase and install a SG237 auto tuner which was installed near the top of the pipe, just below the antenna mount. This was far more convenient, but for some reason or other did not seem to work very well. In particular, there were difficulties in obtaining and maintaining a satisfactory tune. I removed the Outbacker and installed a 2.7 metre stainless steel whip and again, there were continuing problems of the tuner hunting or being unable to find a satisfactory tune. The output of the auto tuner was connected to the base of the whip, above the support spring, using a piece of insulated copper wire. The SO239 connector on the bottom of the plastic antenna mount was left unused.

To investigate, I did a whole lot of things. I used several different HF rigs to see if there was a problem with the original rig. However, all replacement rigs seemed to be subject to the same tuning problem. I then took the auto tuner off the campervan and tried it out on the boat where it tuned perfectly. I tried it on a dipole strung up to a tree where it tuned beautifully. Accordingly, there appeared to be no problem with the rig or the tuner so I came back to looking at the antenna installation.

Experience with HF antennas on sailing yachts led me to suspect that I may have a ground problem. Accordingly, I set about bonding the antenna base to the vehicle chassis, as well as the bull-bar to the chassis, as some sort of attempt to ensure that I had a satisfactory ground system from the tuner. However, the tuning problems persisted. I tried a manual tuner but the metal whip waving in the wind caused major changes in tune. I guess this is why the auto tuner kept hunting for a better tune from time to time.

I moved the auto tuner off the antenna mast because it was obscuring portion of the view from the driver's seat and may have been seen as a bit of a hazard to pedestrians. I mounted the tuner on the plastic grille behind the

Photo 1: Stainless steel whip with auto tuner and flying lead. This arrangement performed poorly.

bull-bar and fed the antenna with a piece of wire from the tuner to the plastic antenna base with the SO239. I installed heavy grounding cables from the tuner to the chassis and the vehicle body. It seemed to work a little better but I could not tune forty metres and eighty metres had never been a possibility. The signal output was very poor and the radio appeared deaf. I had the radio checked for receive sensitivity and it appeared satisfactory. There had to be something very basic and very wrong, and so close to the end of my nose that I could not see it.

Photo 2: The original antenna installation with the Outbacker which, fed with coax, worked satisfactorily.

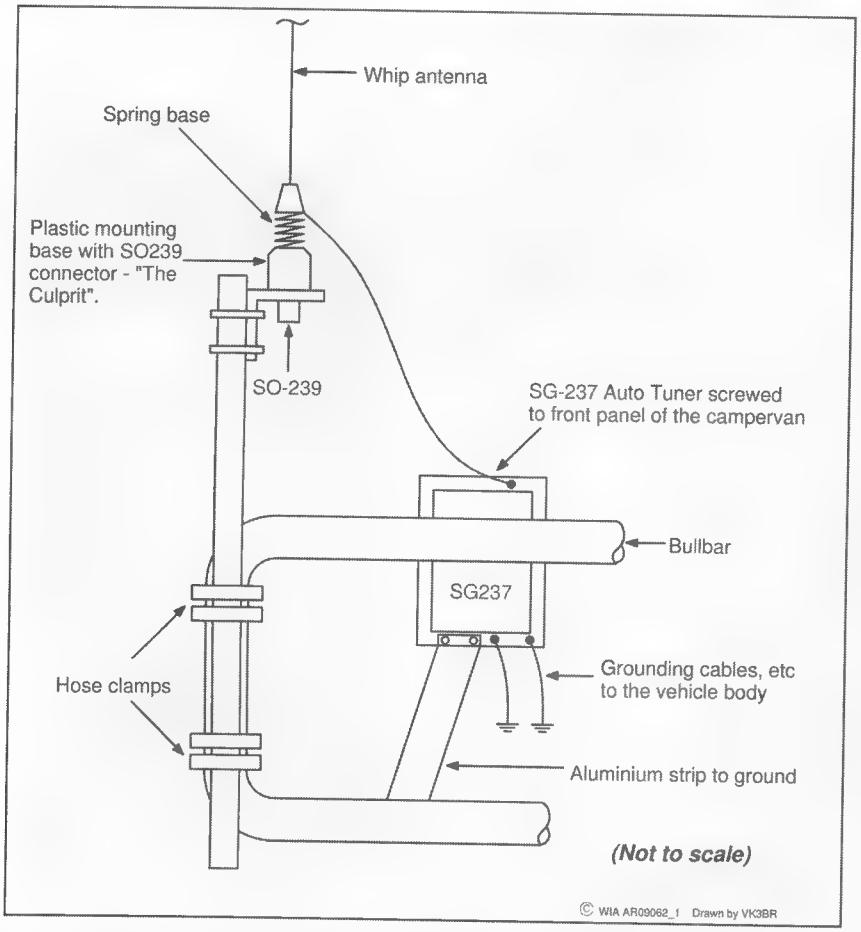


Figure 2: Electrical schematic of the 'trap for young players' antenna.

Then one day I was fiddling around doing some maintenance and it occurred to me that the heavy plastic antenna base with the SO239 connector may act as a capacitor. Particularly, I had gone to significant effort to ensure the outside of the SO239 connector was well connected to ground. In comic books and cartoons, there are pictures of people with light bulbs above their heads flashing on and off when they have a bright idea. I felt a bit like this when I realized that the heavy plastic antenna base for the whip antenna may be acting as a capacitor with the capacitor providing an RF path from the antenna to ground. Hence not much energy got radiated and the antenna system was as deaf as a post. Was this antenna base a real trap for young players? Literally.

I immediately removed the stainless steel whip antenna from the plastic base on the pipe on the bull-bar and connected the wire from the antenna tuner direct to the base of the stainless steel whip. I tied the whole lot to a piece of wood leaning against the bull-bar and then fired up the HF. It tuned immediately on forty metres, twenty metres, then fifteen metres and then eighty metres. Instant tuning with the auto tuner just like it was supposed to happen.

The moral of this story is that there are traps for young players in attempting to use seemingly convenient and appropriate hardware for simple tasks. I have now eliminated the plastic antenna base containing the SO239 and have semi-permanently attached the lead wire from the tuner to the base of the stainless steel whip antenna, all neatly tied to a piece of wood, tied up with electric ties and wrapped with insulation tape. The piece of wood is jammed into the top of the pipe on the bull-bar. There is a five centimetre gap between the bottom of the antenna and the top of the pipe which should reduce

Photo 3: The finished and working antenna system on the campervan.

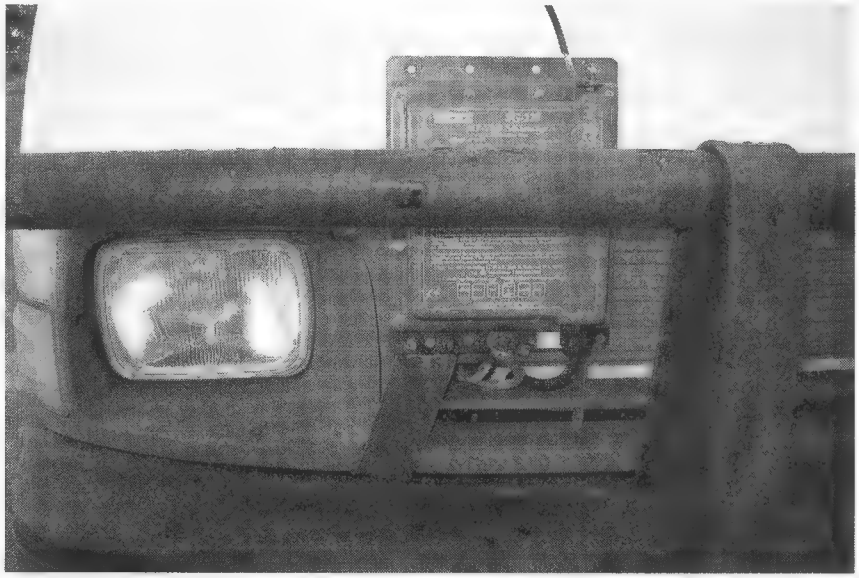


Photo 4: The auto tuner installation on the front of the campervan. Note the heavy aluminium grounding strap to the vehicle body.

capacitance. The wretched thing now works perfectly. Why did it take me so long? Well, it was that trap for young players where I used the convenient and seemingly appropriate hardware not realising that it contained a nasty RF path to ground.

On our next trip away, I expect to be able to be heard on the travellers' nets without the need for several repeats of name, call sign, current location and destination. My thanks go to the very patient operators of the travellers' nets who have taken time and effort to communicate with me despite my dreadful signals. It will be better in the future.

ar

TET-EMTRON

80 Stock Road, Herne Hill, WA 6056

Phone: 08 9296 3224 **Fax:** 08 9296 3231

Email: mark@tet-emtron.com

Manufacturers of the famous

TET-EMTRON vertical range of antennas

- All aluminium with stainless steel hardware
- Light
- 1 kW power rating
- Free standing - no intrusive guy wires
- Can be ground mounted or elevated

For more information see our web site:

www.tet-emtron.com

We'll go to any lengths to serve you better. In fact, the whole 3,636 kilometres from Stratford, VIC to Herne Hill, WA and give you a revamped website to show the way.

www.tet-emtron.com

We also have a greater range of merchandise, so visit us through your keyboard to learn more about great deals and great new products such as:

New 80/40 m wire dipoles

Wire dipole centres

Hard drawn copper wire

450 ohm ladder line separators

Improved balun designs

Improved RF choke design

Discounts for repeat buyers

Use the best from the west

Use TET-EMTRON

Silentkey

Arthur William Stowar VK2AS

27 June, 1920 - 17 July, 2009

Born in Sydney, the eldest child of English immigrant parents, Arthur sailed aged 10 with his family back to England to escape the Depression in Australia. His father, a builder, was offered immediate work, the family remaining there for three years. Then, believing all was OK in Australia, they returned only to find that work was still unobtainable. Times were very tough.

Aged 16, Arthur became interested in ham radio, left school and became an indentured apprentice electrician. In 1938 he obtained his Amateur Operator's Certificate and had his first radio contact- the start of his lifelong passion. Between 1938 and 1948 he kept an immaculate logbook and on 25 March, 1948 earned membership of the Wireless Institute of Australia's DX Century Club; he had 127 confirmed country contacts. On 10 November, 1948 he also earned membership of the American Radio Relay League DX Century Club and in 1949 received Award No 17 from the Radio Amateur Journal for having two-way radio contact in each of the 40 zones on the official CQDX zone map of the world.

World War 2 had intervened, with Arthur posted for three years as Signals Officer with the Papuan Infantry battalion. On 5 June, 1943 he became a Lieutenant with that battalion, receiving the nickname 'Captain Moonlight' for his skills in leading his troop at night out of the jungle back to camp.

As Signals Officer he was the first to give the 'all clear' to advance at the start of the New Guinea campaign. He suffered two bouts of malaria but on leave found his future wife Heather McLachlan, marrying at Grafton Presbyterian Church on 22 July, 1944.

On discharge they settled in Sydney. Always keenly pursuing his hobby, by 1962 he had 300 confirmed 'country' contacts. Later, space research fascinated him and he followed satellites, downloading reams of positioning data and in 1991 received recognition from NASA for his contribution to the SAREX project, the Shuttle Amateur Radio Experiment.

He was heartbroken selling his cherished Collins gear in 2004 when it became clear he would have to move to the RSL Retirement Village at Narrabeen. There, for the very first time, he admitted to having, as a youth, skipped many technical college classes to make contact with other hams.

Amateur radio was his lifelong obsession around which everything had to revolve. He was indeed fortunate to be able to do that.

Arthur began ham life as VK2ACX, later becoming VK2AS.

Submitted by his son John Stowar, with assistance from Chris Zvirblis VK2HX.

David B Lyddieth VK1DL – SK

David was born on 5 July, 1944, at Summer Hill in Sydney, the fourth of six children. In early life he suffered with rheumatic fever and allergies, requiring long periods of confinement. Boredom was the enemy, and his parents gave him a Meccano set to occupy his time and mind. This surely was the beginning of David's fascination with things mechanical, radios and, later, computers.

In 1961 David completed his radio and television servicing certificate with the Marconi School of Wireless, did his apprenticeship with Amalgamated Wireless Australia Limited, and obtained both his First Class Commercial Broadcast and Amateur Radio certificates in 1963.

David's career was busy and varied, and included some time in the Maritime service, as a technician at 2UW in Sydney, and later in Canberra with the Department of Defence where he was involved with the design and set-up of radar installations on ships. Through all of this, he still managed to operate his amateur station often, where he was particularly proficient with Morse code.

Although not in good health for many years, the result of a car accident injury, he nevertheless was active in several outdoor activities and his sudden death on 4 May, 2010, at 65, was a great shock.

David leaves behind his second wife Kay, and children Emma and Simon.

He is fondly remembered.

Created from information provided by his loving wife Kay Lyddieth.

OTY

B-24M Liberator

Dear Sir,

I have read in the current issue of your magazine an article on an ex RAAF member restoring some old service radios.

We are based at Werribee rebuilding a B-24M Liberator aircraft which had extensive radio and radar systems and antennas installed when manufactured. These were removed on disposal of the aircraft.

My reason for this message is to ask if you know of any of your members who may have knowledge or information on the installation of the above equipment which could help us with the rebuild of our aircraft.

Yours Truly,

David Millard.

davidmillard@primusonline.com.au

The Melbourne digital ATV repeater VK3RTV Mt Dandenong

Peter Cossins VK3BFG

The initial licence for the Melbourne Amateur Television Repeater VK3RTV was issued by the Postal and Telecommunications Department on 5 September 1978 and the 'Mark 2' version of the repeater was turned on at Olinda on Mount Dandenong on 4 May 1979.

A number of changes have occurred over the years including Black and White to Colour, moving the output from 50 cm down to 70 cm, replacement of antennas, a new controller, an onsite DVD player and changing/adding the input frequencies of 1250 and 1283 MHz and 10.41 GHz.

ATV activity in the eighties and early nineties was very high in Melbourne with more than 40 stations active. Over recent times, activity had been reduced to a few enthusiasts.

I had been following developments in DATV (Digital Amateur Television) in Europe and thought that a change to digital would provide an impetus for increases in activity. It was also in the spirit of amateur radio to experiment with emerging technologies.

SR Systems in Germany run by Stefan Riemann DG6FAC, had PCBs available 'at a reduced price' for amateur operators that could be assembled to form the basis of a digital television system. Stefan has been a leader in this area and you can find references to his work dating back 10 years or so.

Reading around the DATV literature available, I found that amateurs had favoured DVB-S. This is the satellite standard and can be sustained in smaller bandwidths than analogue TV. It is also more robust from a communications point of view. A satellite receiver specifically connected to an appropriate antenna was required to receive this mode. A receive down converter would be required if we used the current 70 cm allocation.

Mount Dandenong is a good RF location with a null only in one direction. ATV signals can be received 30 – 40 kilometres away and further. I decided that DVB-T would be the way to go as this can be received on normal set top boxes (with manual tuning) that many people may already have. These were dirt cheap now anyway and the purchase of a set top box also can serve as a receiver for commercial television.

What we would need is an MPEG Encoder and DVB-T Modulator and to build some linear amplifiers. On further investigation and dialogue with Stefan, I found out that we could fit two 5.5 Mbit television digital channels into the current 7 MHz 70 cm ATV allocation. This would require an additional MUX PCB and another MPEG Encoder.

Now to calculate the burning question .... how much would this cost and also what other equipment would be needed to be assembled and/or built. On estimations and quotations, it was found that this would require a significant amount of funds, well out of the range of passing a hat around for donations amongst Melbourne ATV operators.

I decided to write a submission to Amateur Radio Victoria in an attempt to gain financial support. The response from AR Victoria was positive, but they indicated that a number of projects in progress had

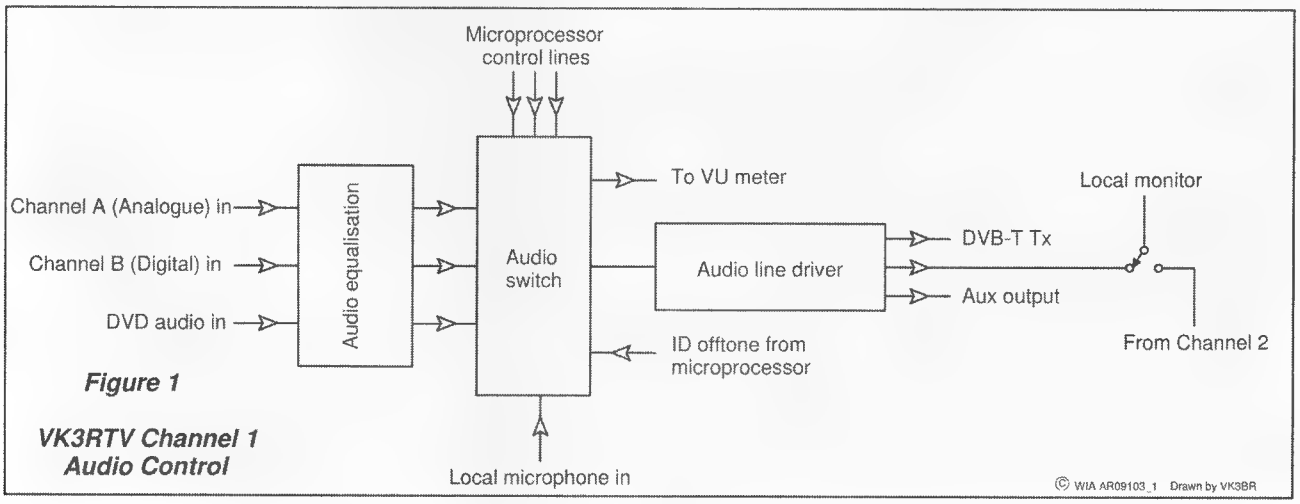


Figure 1: Block diagram – video.

Photo 1: The VK3RTV repeater site.

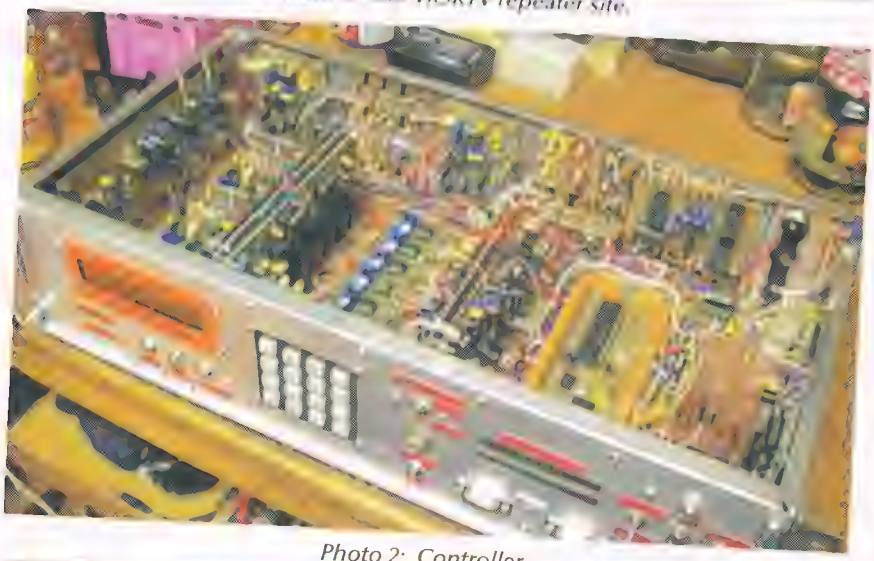


Photo 2: Controller.

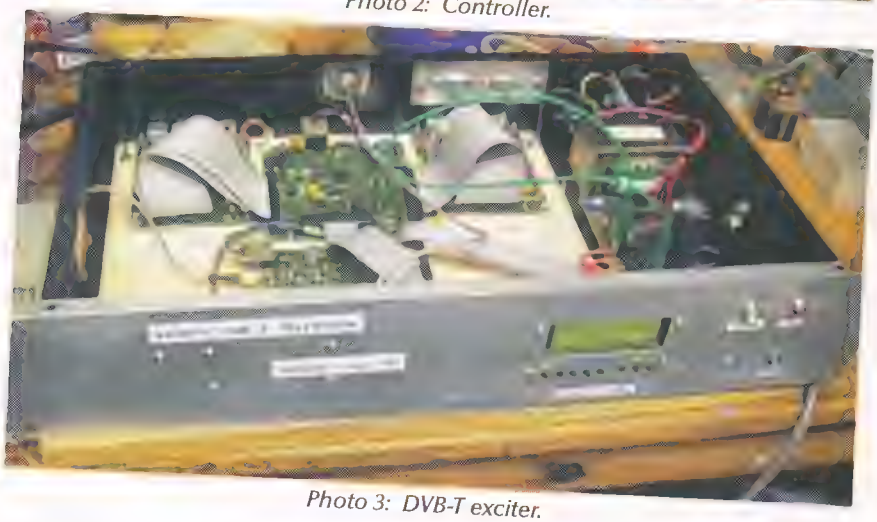


Photo 3: DVB-T exciter.

priority and needed to be completed, but support was indicated for the proposals for some time in the future.

In late 2008, AR Victoria saw its way clear to fund the project. At the same time, innovative projects were being sought by the Wireless Institute of Australia and a submission was duly written. The result was again positive and we now had sufficient funds to proceed.

As we had to simultaneously control two channels a new controller needed to be built.

Naming the channels, VK3RTV1 and VK3RTV2, a decision had to be made regarding management of the two channel sound that was available. Initially we decided to implement LH channel (mono) sound only.

I also wanted the control system to be in one rack mounted box; this turned out to be quite a challenge to fit everything in and also retain a level of serviceability. The video and sound mixing boards were mounted back to back vertically and then the system grew like topsy in a sort of planned way, but some of the existing boards could be integrated and there is a bit of functional duplication in the final unit.

I used relays for switching the video — yes I could have used electronic switches but I had a large supply of DPDT 12 V relays and a scarce supply of electronic switches which are sometimes difficult to source.

This type of switching had been used for the last 30 years in VK3RTV with a high degree of reliability so a 'no cost' electromechanical solution was adopted. The final video line driver is slightly compensated to counteract the lack of bandwidth of the output video from the satellite receiver. One of the outputs from each line driver is connected to a local video monitor and there is also a local audio monitor, switched by the same hardware.

The audio system uses CMOS electronic switching and Op Amp mixing and includes a local microphone amplifier, a bandpass filter to convert ID and tone square waves from the microcontrollers to sinusoidal, a drive to VU meters and an output amplifier.

Two Picaxe 40X microprocessors were used as the software is delightfully easy to use and they have flash ROM that can be burned via a RS232 port.

Dual DTMF encoders and decoders were installed, the encoders to allow local touch tone control. Each video input has a VDA (Video Distribution Amplifier), one port of which goes to the sync detectors for analogue and in the case of the internal colour bar generator and external DVD player, to VK3RTV1 and also VK3RTV2. Instead of using LED indicators, system status information is provided by a LCD display on the front panel.

Other switching includes local monitor and local microphone and also Darlington output drives for switching external relays for future higher power linear amplifiers.

Apart from the video and audio outputs for VK3RTV1 and VK3RTV2, there are two further outputs for extensions of facility in the future.

The modulator can be switched on and off via a RS232 port, but runs only at 115.2 kBaud. As this is not possible from a Picaxe, an additional Atmel AVR microprocessor was added. This is controlled by the Picaxes, and sends the required codes to the modulator at 115.2 K Baud. It also provides the drives for the Darlington output circuits.

The philosophy of the inputs was to have one analogue and one digital (DVB-S) for each output channel.

VK3RTV1 has 1250 Analogue or 1255 MHz DVB-S and VK3RTV2 has 10.41 GHz Analogue or 1278 MHz DVB-S.

The MPEG encoders, multiplexer and modulator were all installed in a rack mounted case including a small linear amplifier to raise the power level enough to drive a FET module PA. The power supply is over voltage protected and the linear amplifier relay switched by the controller.

Robert Broomhead VK3DN came up with an excellent 12 V 46 A power supply all in a case including fans that produce a copious flow of air over the system. An added bonus was that

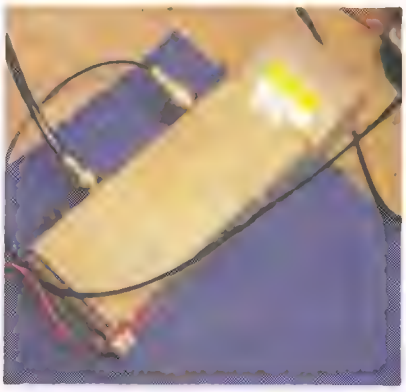


Photo 5: Linear amplifier.

Photo 4: The 46 amp power supply.

Photo 6: Good DVB-S Spectrum from Home TX.

Photo 7: Less clean spectrum – although still OK..

Photo 8 The output spectrum is now poor, clearly quite dirty..

"The pictures above show how the bandwidth rapidly increases with increase of drive.

This effect is extremely non-linear and the growth occurs at an alarmingly fast rate after a certain point has been reached. Similar effects can be seen with overdriven SSB, but with DATV this occurs very much earlier. The result is that the PA's have to be run in Class A and also driven lightly. This produces a highly inefficient RF system.

As the bandwidth of the system is 7 MHz and the centre frequency is 446.5 MHz, care must be taken to ensure that the spectrum is clean enough and does not infringe with significant out of band signals."

they have remote control function which can be facilitated by the system microprocessor.

A RA60H4047M1 60 Watt FET Module was purchased from RF Parts in California and mounted in an enclosed heatsink and fan assembly. Digital televison requires extremely linear RF amplifiers and hence it was necessary to bias the module close to Class A. This is an extremely inefficient mode with a maximum efficiency of 50%. The actual efficiency obtained for digital television was about 14% !!

I decided that this amplifier would be power supply switched using the nice big units provided by Robert Broomhead. This gives the PA time to cool down when the repeater is not in use. The output power at the moment is about 10 watts and good signal reports have been received from all over Melbourne.

The pictures on previous page show how the bandwidth rapidly increases with increase of drive. This effect is extremely non-linear and the growth occurs at an alarmingly fast rate after a certain point has been reached. Similar effects can be seen with overdriven SSB, but with DATV this occurs very much earlier. The result is that the PA's have to be run in Class A and also driven lightly. This produces a highly inefficient RF system. As the bandwidth of the system is 7 MHz and the centre frequency is 446.5 MHz, care must be taken to ensure that the spectrum is clean enough and does not infringe with significant out of band signals.

User Touch Tones can be sent via the sound subcarrier to bring up test colour bar and tone, and also information programs on a DVD player.

Signal reports can be called for 1250 MHz analogue and both the digital inputs. In the case of the analogue receiver, the AGC line is read by an A/D Converter in the Picaxe Microcontroller and an appropriate track selected on a DVD Player announcing the signal report received.

There are four possible tracks, S5, S4, S3 and S2 and less. This corresponds to the 5 point British Amateur TV Club's reporting regime for TV. S5 is noise free through to S1 which is very noisy. The announcer is my daughter Shani Cossins.

In the case of the digital receivers the OSD (On Screen Display) is activated and the internal signal strength and quality report selected.

The digital receivers and also the DVD player are indirectly controlled by a serial port from the Picaxes which send ASCII Characters to a small Atmel 8051 microcontroller. This dedicated controller then emulates the appropriate IR Codes and acts as a remote controlled 'Remote'. The code waveforms from each receiver Remote and DVD player were measured on a Tektronics digital oscilloscope and duplicated.

After some discussion and debate, it has been decided to implement stereo sound. This is already available for the digital modes, it is only a matter of patching the RH Channel

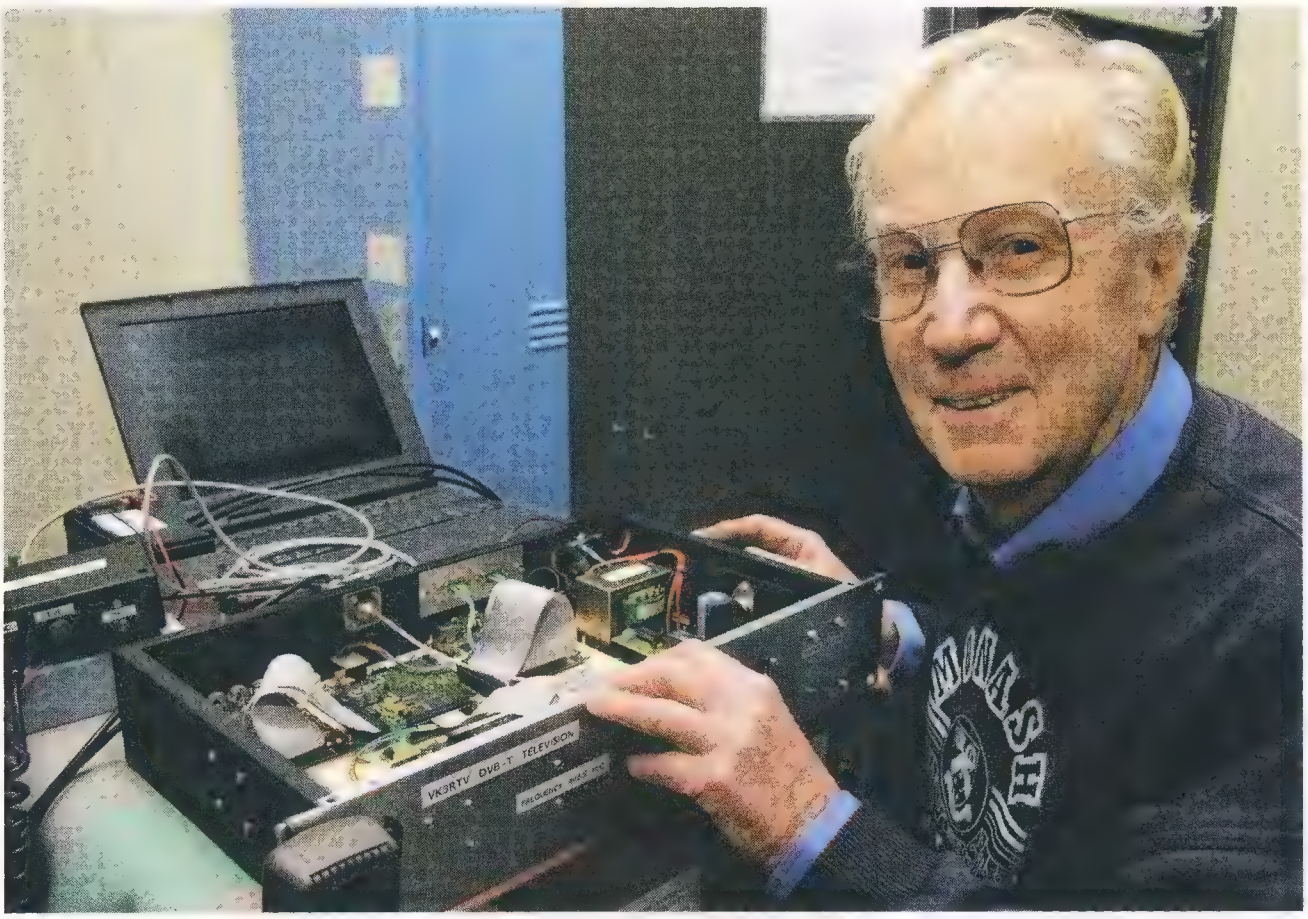


Photo 9: The author with the 70 cm digital transmitter.

Photo by Robert Broomhead VK#DN

from the receiver to transmitter. In the case of 1250 MHz analogue, the receiver will be programmed with sound subcarriers on 6 MHz and 6.5 MHz. Most of the available analogue ATV transmitters have dual sound capability or can be easily modified to achieve it. Mono sound will operate via the LH Channel with a subcarrier frequency of 6 MHz.

With an analogue input to the system, the results are extremely good with an improved output S/N compared to the previous all analogue system.

With a DVB-S input it is even better with virtually no added noise. The quality of the transmission is fairly close to the quality of the originating video!!!

Thanks to AR Victoria, the Wireless Institute of Australia, and also the members of the Melbourne ATV community whose donations of money and equipment over the years have kept VK3RTV on air. Phil Gardner VK3GMZ deserves a special mention for all his work in support.

Thanks also to Richard Carden VK4XLR, for his advice behind the scenes during the project (Richard has been running DVB-T and DVB-S in Queensland for some time).

With the excellent quality now available it is hoped that ATV Operators will continue to develop appropriate programs of interest for transmission. Lower level licensees may be encouraged to upgrade and experiment in this fascinating component of our hobby. **ar**

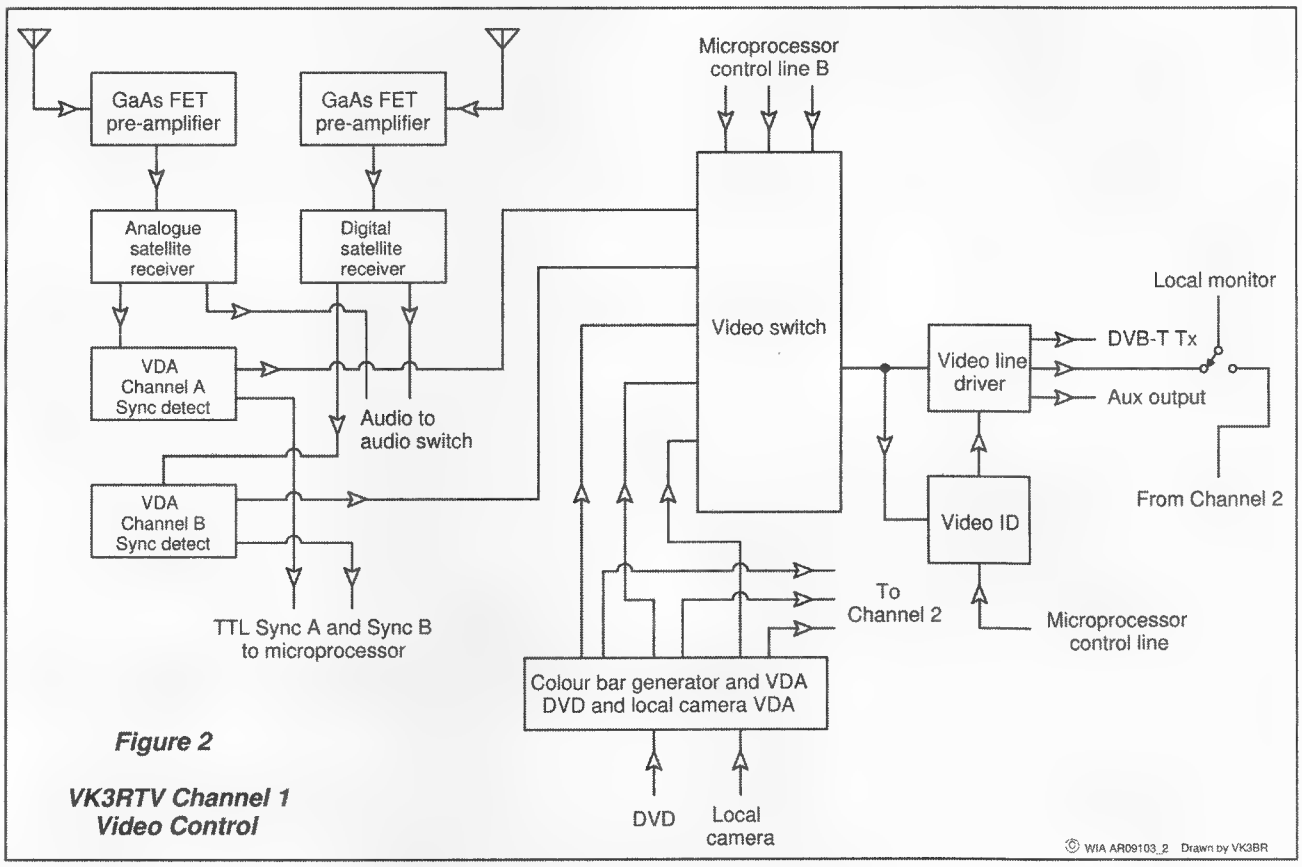


Figure 2: VK3RTV Channel 1 Video Control.

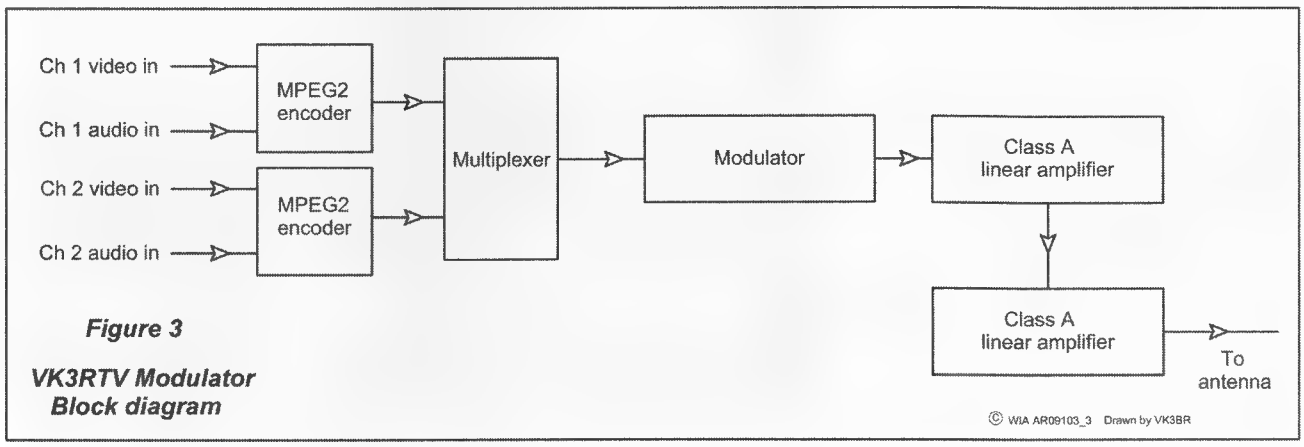


Figure 3: VK3RTV Modulator Block Diagram.

The Targa Wrest Point 2010 rally

Roger Nichols VK7ARN

WICEN in southern Tasmania has a long association with motor sport, especially Targa Tasmania and, in earlier years, the Australian Rally championship heat under its various sponsor related guises.

Tasmania's loss of the championship heat was also sadly missed by WICEN. The differences between the two events, from WICEN's perspective, was that Targa involved radio and repeater deployment and operation using Targa owned equipment, whereas the championship task was to design, establish and operate a whole system.

Rallies normally have at least three radio networks – Stage, Command and Results. WICEN's role on Targa Tasmania involved Stage nets. On the championship event it had been Command or Results. WICEN's interest in Targa dwindled.

Discussion with Targa's Communications manager, Ron Brown VK7ZRO, led to Ron having a think about something with a technical challenge for WICEN to get its teeth into.

Ron is well known for at least two of his attributes, both associated with his head. The first is that lots of it is visible. The second, of more importance, is that Ron does a fair bit of thinking, usually with interesting outcomes.

In 2009, a new event was introduced - Targa Wrest Point - a sort of mini Targa, run only in the south of the State over two days versus the five days of Targa Tasmania.

The first event in 2009 suffered some problems which were designed out for 2010. One of the changes was the use of one stretch of road four times, twice in each direction. This road leads from Geeveston in the Huon Valley to the Tahune Airwalk, a spectacular tree top height walk way in the deep and winding Huon River valley.

The stages' Starts/Finishes were almost at the Airwalk, a very difficult location for radio communications. The Airwalk visitor station has satellite phone communications for voice and data but this was only available for the rally in case of dire emergency. The challenge for Ron was getting reliable communications between there and Rally Command at Wrest Point Casino, back in Hobart.

The solution? Come up with an outline plan and call in WICEN Tasmania (South) to develop and implement it: thereby fixing two problems at the same time, communications and WICEN's dwindling interest.

Ron had found a good, high location in 2009. A new logging road to an elevation of 555 metres ended at a nice level platform with astounding outlooks in the requisite directions.

This gave a good start but still did not provide communications directly to the stages' starts and finishes, nor over a 300 metre range of hills 53 kilometres distant and on to Rally Command at sea level, a further three kilometres away. This gave a total path from the stages to Command of 63 kilometres.

Solutions

Command - Voice

UHF to a UHF/VHF cross band repeater located across the river from the rally stage terminus.

VHF to a repeater at the high point.

VHF to a VHF/UHF cross band repeater located on the hill above Wrest Point Casino in Hobart.

UHF to the Casino.

Results

Data (files containing each stage's start and finish data)

Runner with USB dongle from Start/Finish to,

Packet Station located across the river to,

Packet station located at the high point,

Photo 1: The Arve 34C link with, from left to right, Roger VK7ARN, Peter VK7TPE and Garry VK7JGD.

Photo 2: The Arve 34C Stage Net station (foreground) and Command Net VHF repeater station.

Photo 3: The Arve 34C packet to internet station.

Transfer to Telstra NextG wireless broadband,

Email to Results at the Casino.

Resulting from field surveys, four WICEN locations were established. The first being in a picnic area at the start of the Airwalk walking track and UHF handheld accessible from where the action was, at the stage termini. This was physically accessed via a bridge over the Huon River, normally open only to pedestrian traffic.

Two stations were set up here. A Kenwood TM-D71A with UHF folded dipole and a commercial vertical dipole on a six metre mast provided the cross band repeater for Command voice communications. The packet service was covered with a netbook PC, a Kenwood TM-D710A with built in TNC and a Diamond X50 antenna on a five metre mast. Power was from a portable generator and power supply. The YAPP file transfer facility of WinPack AGWPE drove the packet. An initial file corruption problem was overcome by a PACLEN adjustment and from then on all ran sweetly.

The next link was on the hill top, known as Arve 34C, the name of the logging coupe. A Honda 1 kVA inverter generator powered this site. Here was a VHF repeater for Command voice communications (Tx Phillips FM815, Rx Phillips PRM80), six metre mast and six element Yagi, aimed towards Hobart, and another Kenwood TM-D710A with Diamond X50 at six metres as the second packet station.

A notebook PC received the files which were then attached to emails despatched to Results in Rally Command at Wrest Point casino. Connection to the Telstra NextG network was achieved via a Telstra wireless link service and a Phil VK7JJ designed eight element Yagi (www.perite.com/vk7jj/NextGYagi.htm). WICEN also established the Stage Net 80 MHz repeater at this location.

The next link in the Command net was at Mt Nelson above Hobart.

An Icom IC-2720 in cross-band mode with a eight element UHF beam and VHF vertical dipole at six metres was intended. Initial problems led to trials on another IC-2720 with a car roof top dual band antenna. This was adequate

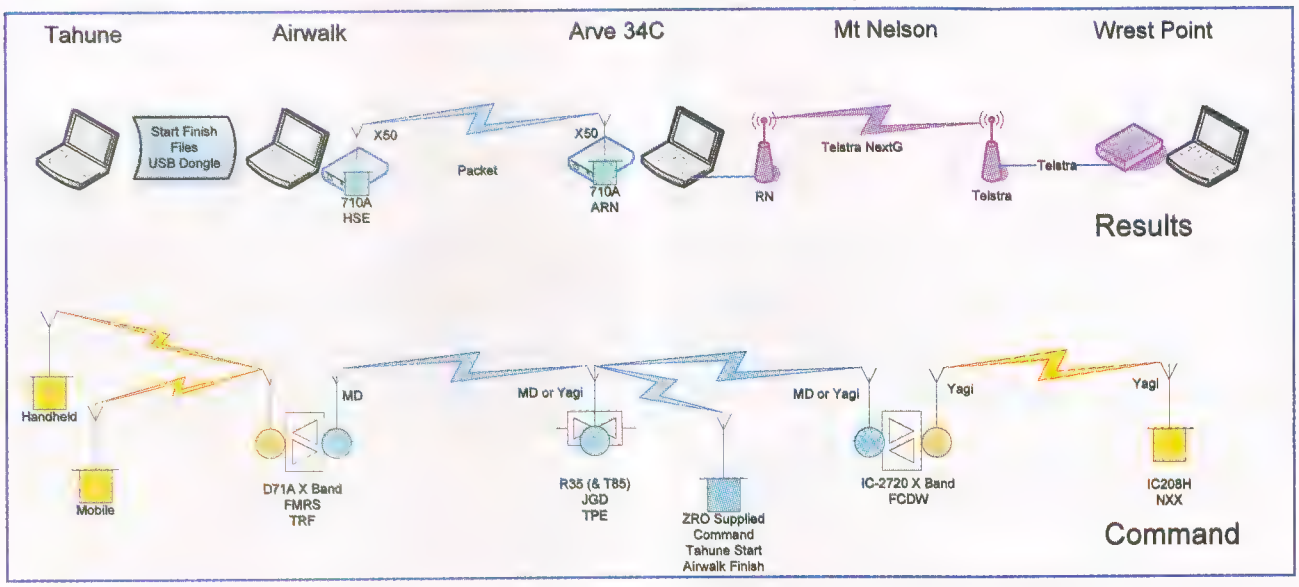


Figure 1: The network schematic.

ELECTRONICS ONE-STOP-SHOP

25 Watt Soldering Iron

$13.95

Ideal for the hobbyist and handy person. Has a stainless steel barrel and orange cool grip, impact resistant handle.

Spare tip available - TS-1466 $3.95

Semiconductor Component Analyser

Intelligent semiconductor analyser that offers simple identification and testing for a variety of 2 or 3-pin devices. Type and lead identification as well as forward voltage, test current and other parameters for transistors.

- Automatic type identification of Bipolar Junction Transistors (BJTs), Darlington, MOSFETs, JFETs, triacs, thyristors, LEDs, diodes & diode networks
- Automatic pinout identification
- Gain and leakage current measurement for BJTs
- Silicon and germanium detection for BJTs
- Forward voltage and test current
- Dimensions: 100(W) x 71(H) x 27(D)mm

New

$129.00

Illuminated Gooseneck Magnifier

This handy hobbyist's magnifier has a 2 x main magnifier lens with 5 x insert lens and 2 LED lights, all mounted on a flexible arm. Can be free-standing or clamped to a surface up to 38mm thick.

- Lens 110mm (dia.)
- Stands 225mm high
- Includes protective lens pouch
- Requires 3 x AAA batteries

$29.95

Fujiya 110mm Precision Side Cutters & Long Nose Pliers

Both these cutters are precision ground and perfect for cutting super fine wire as well as for general workshop use. They also have insulated handles which are spring loaded for effortless use.

- 110mm long
- Soft grip handle

Fujiya 110mm Precision Side Cutters Cat. TH-2332 $34.95
Fujiya 110mm Precision Long Nose Pliers Cat. TH-2334 $34.95

FUJIYA

$34.95 each

30 Piece Tool Kit with Case

MORE INFO

Minor DIY repairs are a breeze with this 30 piece tool kit and every DIYer should have one of these in easy reach. The tools are held securely in a zip-up case. Cutters, pliers, tape measure, sockets, screwdriver bits and more. See website for detailed contents.

- Case measures 210(L) x 160(W) x 48(H)mm

$24.95

New

For your nearest store log onto our website www.jaycar.com.au or call 1800 022 888

To order call 1800 022 888
www.jaycar.com.au

Jaycar

and stayed in use for the duration. The system terminus in Wrest Point Casino is almost RF impenetrable, so a tripod mounted six element Yagi at the front door was connected by Heliax to an Icom IC-208H in the room being used as rally Command centre.

The south east amateur repeater network provided good liaison channels via VK7RTC on UHF and the VK7RBI, RHT, RAD linked system on VHF. Mobile phones were also used. The Airwalk location could not access any of these repeaters, so any liaison traffic was passed via the Arve 34C station.

The task was completed successfully, despite a few early pre rally start hiccups. A lesson learned was although each of the sections was tested prior to the event and worked successfully, linking throughout caused new issues to arise which needed to be fixed on the run. Logistics precluded a full system test on site. In future we will test the paths on site, but also establish a facsimile of the full system across a 'paddock' to indicate any trouble points.

Amateurs on the event

Tahune Airwalk
- Command – Michael VK7FMRS
- Packet – Scott VK7HSE

Arve 34C
- Command – Gary VK7JGD
- Packet and NextG – Roger VK7ARN and tele-tech harmonic Richard

Stage Net – Peter VK7TPE

Mt Nelson
- Command – Chris VK7FCDW and Kerry

Wrest Point Casino
- Command – Stu VK7NXX

Stage Nets
- Dale VK7DG, Clayton VK7ZCR, Bob VK7FRKL and Scott VK7FSCO

'004' and '006'
- Ron VK7ZRO, Leon VK7ZLM, Rod VK7TRF, James VK7FJLC and Gavin VK7HGO

ar

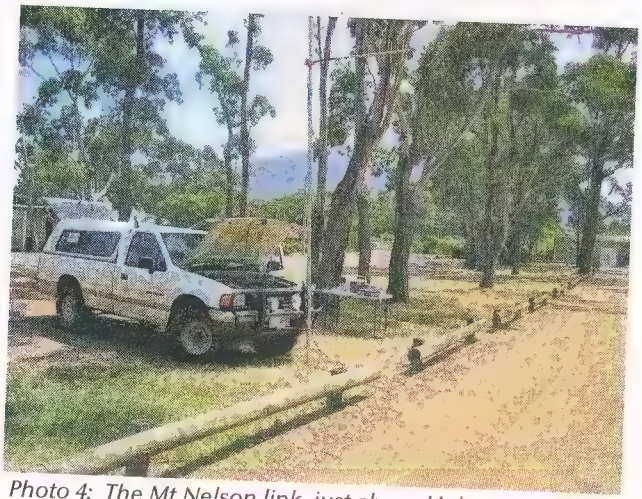


Photo 4: The Mt Nelson link, just above Hobart, with Chris VK7FCDW and Kerry in control although not in the photo.

Margaret Blight VK3FMAB

GGREC Re-enactment at Koo Wee Rup.
The group photo of ALARA members shows from left Susan VK3LOV, Pat VK3OZ, Margaret VK3FMAB, Micheline VK3FMGE and Naree.

Please Note:

From Bev VK6DE
Re Corrections to the VK6 Lunch details. The lunch is held on the last Wednesday of the month at the Bayswater Hotel. Anyone wishing to attend should please contact Poppy VK6YF on 08 62784339 for further details

Other Snippets:
News from Norma VK2YL While in Canberra with her two daughters for the WIA Conference, they were able to visit the mint and purchase a number of rolls of the new Girl Guide $1 coins which they have brought back to issue to their Guides as keepsakes. These coins are now in circulation All this plus radio activities!

Norma also informed us that NSW ALARA is planning their first birthday party this year. Well, congratulations! Do please let us know how things fare. We look forward to hearing all about it.

Shirley VK5YL has heard that Tina VK5TC and Christine VK5CTY are both safe and well having avoided floods and other hazards on their way to the YL International Meet in Munich We hope to be able to bring you all the news upon their return

July is the ALARA birthday month. 35 years on from the beginnings when a few women operators sought to meet other females with the same interests. So much has happened in the intervening years and the organisation continues to grow

Norma O'Hare VK2YL, her husband Frank VK2AKG, together with daughters Lorraine VK2FICQ and Michelle VK2FMYL attended the WIA Centenary Convention. This is a photo of her family with Dick Smith.

Frank VK2AKG, Lorraine VK2FICQ, Norma VK2YL, Michelle, VK2FMYL, Dick VK2DIK, Robyn, Mark VK2ZQD

(Robyn is Mark's wife, and Mark is Frank's brother)

WIA Centenary Weekend
A number of ALARA members attended the WIA Centenary Conference held in Canberra over the weekend of 28-30th May, 2010 Marilyn VK3DMS was present together with Jenny VK5ANW, Colleen Giles-Clark, Jenny VK5FJAY, Meg VK5YG, Nancy VK2PNG, Heidi VK3FHID, Myrna VK5YW, Lia VK3LPH and Norma VK2YL together with her two operator daughters, Michelle VK2FMYL and Lorraine VK2FICQ.

The following is an outline of impressions of the event from some of the participating ALARA members.

The event was held at Rydges Lakeside Hotel which was an ideal venue for the meetings and Celebration Dinner. Everybody arrived during the Friday and later all gathered at the Black Mountain Tower that evening for a viewing of the communications equipment. People were split into three groups to undertake the tour which was a great introduction to the event. This was followed by dinner in the Tower's revolving restaurant. People were warned not to place their bags on the revolving window sills for fear they might lose them. The last tour group was a little delayed in returning for dinner but everyone used this period to catch up with old friends and meet with newcomers.

After breakfast on Saturday some of us attended the AGM and forum while others joined the tour around Canberra, which they thoroughly enjoyed despite the day being rather bleak and a little wet. For those of us attending the forum, the generous luncheon and afternoon tea gave us a great chance to catch up with others such as one of our newer members Heidi VK3FHID and her OM

The afternoon presentations were excellent and very interesting. Norma VK2YL, ALARA's founder, gave a wonderful talk and power point presentation, ably assisted by her daughters Michelle and Lorraine who are themselves operators. She highlighted our 35 years from the beginnings of the group then known as LARA right through to the current day, with words of encouragement to ensure the hobby continues in the hands of new and younger members. The presentation was very well received.

All together there were eleven presentations each running for approximately 20 minutes. A variety of formats was used, such as anecdotes, film, power point projections etc. so the audience was never bored. The afternoon's programme was ably co-ordinated by Peter Wolfenden VK3RV who is a great source of information relating to the history of people and their contributions to the development of our hobby in Australia.

Two YL Contests To Add To Your List.

The first is a DX-pedition to Greenland between 16th and 20th September this year. The six YLs intend to be on the radio round the clock to try to give as many amateurs as possible the opportunity of working them on SSB and CW.

If you are interested in rather rare DX this could be your chance. Have a go, please they will be thrilled to make contact with VK calls.

QSL Manager Inger Lundin LA8FOA AT Plantagevej 9, DK-2680 Solroed Strand Denmark

The second Contest, sponsored by France, is the UFT-YL-CW Contest. This will run for two periods. On 19th November from 1900-2100 UTC on 80 metres which will be difficult for VK amateurs but 20th November between 0800 and 1000 UTC on 40 metres (7010 – 7030Mhz) may be possible.

There will be multipliers for DX countries and they will welcome SWLs who record a complete QSO.

Logs to be sent to Evelyne Terrail F5RPB at Quartier Syt Jean 26340 SALLANS France

The YL International Meet in Munich

Thirty YLs from around the world met on 18 June for the YL International Meet. Connie DF8MN was our hostess and the program of activities she had arranged was very interesting.

We saw much of the Munich that draws tourists every year and we could see why.

The weather was not kind. It was summer in Munich but there were some days when the winter temperatures in VK5 and VK2 were higher than that in Munich.

VK5 and VK2 are important as for this International Meet there were three YLs and two OMs from Australia attending. At many of the recent International Meets, Gwen VK3DYL has been the only representative from VK-land. Unfortunately, at the last minute Gwen had health programs that prevented her travelling but Tina VK5TMC, currently President of ALARA, and Dot VK2DB, our very good, long time editor of the ALARA Newsletter were both in Munich with their OMs, Robert VK5ZHW and John VK2ZOI, and Christine VK5CTY represented the land downunder.

There were three couples from the US, Lois WB3EFQ current President of YLRL, and Anne WB1ARU, immediate Past President, and Rose-Marie KB4RM, the Sponsorship secretary, and their OMs along with Suzanne VE7IM represented North America.

There were two YLs from Japan, Mio JR3MVF and Ton JR6XIX and her OM Dom, and Sarla VU2SWS from India, all three of whom have attended a number of earlier YL Internationals, and all well known in the DX world.

Some of the German YLs who made up the total are also well known in DX circles and have attended other International YL Meets, such as Christa DJ1TE and Gertrud DK8LQ. But for some it was the first such gathering.

To conclude our formal meeting we had a very interesting talk about the experiences in Antarctica by someone who had wintered over several times and spent some shorter periods there.

The time-lapse photos of auroras and seeing a different section of Antarctica from the Australian bases were particularly interesting.

At the formal meeting Tina, co-ordinator for the next YL International, in Adelaide in 2012, spoke and stirred up quite a lot of interest.

As a group the attendees in Munich also went to the very large and very well-known Hamfest held every year in Friedrickshaven. Tina made her presentation again which was very well received. It would seem that many YLs would like to have an excuse to come to Australia.

Personally I was astonished at how many German YLs spoke to me because they had met me ten years ago at the YL International Meet in Hamilton in ZL-land, as well as a number whom I have met at the other International Meets I have attended.

International YLs are just as friendly a group as amateurs are all over the world. We have a great hobby.

A RECENT YL SK

Christine VK5CTY.

Maxie DJ4YL, known to most of the VK5 YLs and to a number of other amateurs all over Australia, became an SK in June.

Maxie had been an amateur for many years and was active at one time on the CW bands, but mostly she was an assistant to her OM Heine who was a white stick operator.

Together they made friends with amateurs in many countries but especially in Australia.

After Heine became an SK Maxie and her sister travelled to Australia, every couple of years, visiting some of the amateurs they had met through CW and seeing much of the country, particularly the more natural places.

Unfortunately Maxie developed cancer several years ago and succumbed to it while I was in her home town of Munich at the YL International Meet. We did not see each other but we both knew we wished to do so if it was possible.

Maxie was not involved in the YL International world but was supported by a number of Munich amateur friends.

I thank you for your long-distance friendship, Maxie.

VK4news

Paul Beales VK4XPB
Email: qtc@wia.org.au

Club Notes

Ingham

Felix VK4FUQ would like to advise of the "Afternoon Net" in the North/Far North Queensland Region operating daily from 4:00 pm local.

Many and varied subjects are discussed with a main emphasis on technical and radio issues.

It runs for around 30 minutes and is usually heard on 7.098 (+/-) during summer months and 3.573 (+/-) during winter.

All local, as well as travelling amateurs are welcome to join in the chat.

CHARC

A final reminder of the Central Highlands ARC's AGM to be held at Lake Fairbairn, near Emerald from 4:00 pm Friday 17 to midday Sunday 19 September.

More details available from Gordon at vk4kal@wia.org.au

Gladstone

By the time of printing, the Gladstone ARC IRLP Node (6246) will be back on air after a total failure of the hardware. Thanks to Michael, VK4FMCF and the Team.

Travellers in the Region are welcome to "call home" and also join Club Nets at 5:30 pm local on 146.625 Sundays and 53.725 Tuesdays.

The club is submitting a repeater licence application for the site at Lady Larcom, NW of Gladstone. The application will be for 439.800 MHz, instead of the 438.675 currently being used for testing (91.5 Hz CTCSS).

It has been a very quiet month in Queensland, as evidenced by the lack of information submitted.

Hopefully this will improve now that we are in the "Dry" and the evenings are getting longer

Paul VK4XPB

From Queensland's Port City

North Queensland Radio Holiday

Mike Patterson VK4MIK and J.R. (Ross) Anderson VK4AQ

Members of the Tableland Radio Group (TRG) have developed a liking for camping and visiting various places in FNQ for sightseeing, social get togethers and, of course, operating amateur radio gear.

Mike VK4MIK had a month off from his "salt mine" and Group members decided on a busier than usual schedule of trips as these are usually organised around his work roster.

Radio operations concentrated on the ability to operate CW, SSB and Digital modes from each site whilst overcoming any constraints. Portability and easy set-up were other important considerations. Equipment comprised the FT-817, IC-703, FT-100 and FT-897D plus tuners, batteries, solar panels and antennae. Antennae included an Inverted Vee and 12 m aluminium pole, a long wire, and some smaller verticals.

Accommodation normally comprised three man tents with annex from which radio ops took place. Eskys with block ice gave about a three to four day refrigeration limit which suited camp needs quite well.

The first trip was to the Gulf Country, with Bill VK4WL, where the first night we set up at the Forsayth (pop. 76) Caravan Park. A visit to the quite excellent Georgetown mining museum was made on the way. The Forsayth van park was good and the proprietors were very amenable to us putting up an antenna and, indeed, were curious and interested about who we talked to. The local Pub put on a nice meal and the locals were friendly and keen to learn what we were doing.

We packed up and headed west to the old gold mining town of Croydon. It was a long, rough drive but chatter on 2 metres helped make the miles fly by. The caravan park at Croydon was good and, once again, friendly proprietors and no problems putting up an antenna. We encountered a young lass who was very curious about our gear so, after getting the consent of her parents, we put her on air which she enjoyed immensely. We had a good look around the town and were pleasantly surprised by the community pride in the heritage buildings and history of the area. Some locals pointed us to the Visitor Information Centre and Chris Weirman, the local historian. It was pleasant operating from our tents which were shaded by the trees carrying our long wire antenna. Good take away meals were provided by the local café and pub.

Regular 'eastern' Nets we normally worked from our home QTHs were noisy at the time but this was less and less a problem the further west we moved and we always managed a good copy and received similar reports in return. Two days were spent at Croydon before the long haul back to the Atherton Tablelands.

A couple of days later Pat VK4MUY, Dave VK4FUY, Bill VK4WL and Mike VK4MIK headed south, into the ranges between Townsville and Ingham to the small township of Paluma, altitude 1900 feet, where we had a B and B and a cottage for a few days. We set up in the carport of the cottage and ran the long wire up into the trees while the verticals were set up on tripods. After a quick tune up we put out a call and immediately made contact with Matt AI0L in Northern Colorado USA. All systems working FB!!

We had a lot of fun working the various nets, walking local trails and going to coastal lookouts. We also searched for evidence of the World War II RADAR station and came across a couple of very old solid concrete Quonset huts and cement bases possibly of the tower. One has to be cautious in this area as there are quite a few old mine shafts and several people have disappeared over the years. Dave and Pat had been involved in SES search in one such incident some years prior. Mike had a couple of other reasons for going there. Firstly, his uncle had helped building the road to Paluma during the 1930s Depression and, he had served on HMAS PALUMA in 1972-73 and wished to present a photo of that hard working little hydrographic vessel to the community historical society.

Operating from Paluma was a somewhat chilly experience at night

but it was great to have the nice clear sky and the accompaniment of the many birds and wildlife from the nearby jungle. We all enjoyed the friendly atmosphere and the nice feeling of this old village.

Our next trip was the annual pilgrimage to the QTH of John VK4FNQ, Cheryl VK4FRYL and Bluey (the cattle dog), widely known as Majestic Towers, near Charters Towers. John is well known for his operations on the higher bands and his shack quickly has one drooling with envy. His antenna farm is even more magnificent!

Ross VK4AQ and XYL Bev together with Keith VK4BKS and XYL Barb joined us for this venture. This site saw the long wire and inverted Vee antennas in operation. We made contact with VK100WIA, operator Brian VK2AVO, who had a lot of noise at his QTH so a fellow amateur did a relay we had Brian 5-9 but he had us at best 4-4 due to the noise. We kept our scheds on our regular nets and managed contacts into Korea (IOTA 148 expedition), California, New Zealand, and Tenerife. We talked much about our favourite hobby while bush cooking in the camp oven proved popular each evening.

Swimming in the Burdekin River was a chilly experience but it certainly cleared away the cobwebs. Bluey paid us a visit a couple of times a day to ensure all was well and to sneak in a few 'unofficial' snacks! Keith had designed a vertical using a squid pole which operated extremely well in the portable situation. Plans are already in hand for next year's excursion out to 'the Towers' and these wonderful hosts.

Home to mow the lawn and off again to the next location at Mount Fox, SW of Ingham and once again high in the mountains, Bill VK4WL came along on this one. It has a nice 'compact' road leading up the range but the views were breathtaking.

Mount Fox is also home to another famous FNQ amateur, Rob VK4ARQ and XYL Carolyn who live on some glorious acreage. Camping at the Cricket Club was superb and there were plenty of high trees which lend themselves to good inverted Vee and long wire positioning.

Our first contact was with Greg VK2GJC at Uladulla who gave us a sig report of 57. We worked many VKs as well as Oleg 5W0OX/MM in West Samoa, Mike WB6JXJ in California and Ted KD0JJO/P DV7 in the Philippines.

It was quite cool and Bill WL was concerned about the effects of frostbite on parts of his anatomy!! The hot showers at the Cricket Club were a God-send, thanks to Rob's foresight in stoking the donkey boiler up for us beforehand.

Mt Fox was the site of Australia's last volcanic eruption and the black outcrop is still visible and can be climbed readily. Rob was a great source of local knowledge and history which is always interesting and entertaining in his outgoing demeanour.

Finally, Bill VK4WL and Mike VK4MIK went up to Cape York Peninsula to the small town of Laura where services to the pastoral industry and the Lakefield National Park fishing fraternity are legend. Laura has an interesting history linked to the Palmer River gold rush days and once had a train which ran between Laura and Cooktown. We were domiciled in the Caravan Park once again where there were no objections to our antennas. It was interesting as our long wire was orientated to the east and we managed to make a contact into the Caribbean with Hascal 8P6GU in Barbados, who could not believe our operational set up, as he was using an FT-1000 300 watts and a triband antenna. Dave VZ1C in Antigua gave us a 56 report. We managed to do a bit of sightseeing around the town which has some good relics of the past. At Laura an interesting aspect of operating is the quite poor soil conductivity which necessitates a better than usual earth for efficient operation. Ray VK4TFT brought this to our attention a couple of years ago so we were well prepared.

All in all we were able to ensure that Mike had an interesting holiday with a lot of 'radio active' friends involved and a lot of country visited. We achieved our aim of operating the three modes from each location while managing to achieve some positive DX using a modest set up. Portable operation provides the chance to experiment with varied antenna arrangements.

Upcoming activities for the Group include a Christmas in July at Lake Tinaroo and the Lighthouse Weekend in Cooktown for our sixth year running. Individual camping trips to the Gulf district are also coming together.

ar

VK5news

Adelaide Hills Amateur Radio Society

John Elliott VK5EMI
President, AHARS

Our June meeting was a Safety Information Evening. We had a St John trainer talk on the basics of First Aid and training (thanks to Peter Jackson); Tower Safety was presented by Paul VK5PH, who outlined the dangers of operating at altitude without the proper training and harnesses; fuses and safety switches were covered by Lyle VK5WL; and general discussions about electrical safety (with some horrifying dangerous lead and plug combinations displayed); Tag and Test by Graham VK5ZFZ, and finally a video of a young cameraman who – unaware of how close to death he had just come – continued to take photos of an accident that missed him by inches.

The major points relating to safety include: training, attitude, and planning the job. Do not rely just on your "commonsense" – it might not be quite enough!

Our July meeting is a presentation by David VK5KC on the 2010 WIA AGM activities, and a talk by Phil Storr on the Historical Radio Society of Australia.

Our mid-year luncheon is on Sunday July 18, at Fresh Choice, Diagonal Road, Sturt. Please confirm your attendance with the Secretary, David Clegg (davidclegg@internode.on.net) or myself (dellio2@bigpond.net.au).

August will be a brainstorming session on the future directions of AHARS; and Restoring an AR7 WWII receiver, by Rob Gurr VK5RG.

The next major event coming up is our 2010 SYMPOSIUM. This will be on Sunday September 19, at the Belair Community Centre. Presenters are welcome – please contact either David or myself. Guest of Honour will be Drew Diamond VK3XU, who will talkon Innovative Home Brew Ideas, and his work on the LF band. More details later.

Welcome back to Christine, VK5CTY, who has just returned from yet another tour of Europe! Sounds like she enjoyed herself again, too! ar

VK7news

Justin Giles-Clark, VK7TW

Email: vk7tw@wia.org.au
Regional Web Site: reast.asn.au

Congratulation to Barry McCann VK7TBM OAM. The Queen's Birthday honours list had a Medal of the Order of Australia for Barry for services to Maritime Communications. Barry started as a radio technician with 7HT in Hobart and along with Les Collins in 1975 established a radio network for pleasure craft which started with 14 boats and today has over 1200 boats registered.

The Tasmanian Smallcraft Marine Radio Group (TSMRG) has grown into Coast Radio Hobart when it took responsibility for the Tasmanian section of the National High Frequency Radio Network that monitors marine HF and VHF distress frequencies. Congratulations to Barry McCann OAM.

Northern Tasmania Amateur Radio Club

Wednesday 9 June was the NTARC BBQ at the Mt Barrow Interpretation Centre. From all reports it was a great show with 10 people and four dogs enjoying the night. It ended up with a cool calm night with a good fire to keep everyone warm. One highlight reported was Peter VK7KPC's XYL Kay's famous jelly cakes along with plenty of food! Some stayed overnight and woke to a bright and clear morning that was white and crunchy underfoot!

Congratulations to NTARC Treasurer Ann, VK7FYBG and Tony VK7YBG on the safe arrival of their second child, Samuel. Sister Tabatha has apparently been telling everyone how much she was looking forward to having a brother.... HIHI

Do not forget the last Monday of the month is the informal coffee morning at Lilydale – hosted by David VK7YUM and Norma in their Café at Lilydale.

Cradle Coast Amateur Radio Club (CCARC)

The June 26 meeting was a presentation by Vernon VK7VF on the HP8924C test set and the RF tools software package. The 8924C is actually a CDMA mobile phone test set however it also covers FM and SSB modes up to 1GHz.

Please note that use of Slow Scan TV on repeaters was also discussed at this meeting and members endorsed the use of this mode on the Lonah repeater VK7RNW (146.750 MHz) where an amateur's licence permits. The conditions of use are available from the CCARC website at: http://www.my-x15.net/ccarc/sstv.html

North West Tasmanian Amateur TeleVision Group

The Club now has two eQSO chat rooms available. The rooms can be found under the callsign VK7AX and are called "101English" (linked to the VK7RTV 2 m Repeater) and "ATV & SSTV" Chat. Interested? Take a look at the eQSO webpage at: http://eqso.org/ for more information and registration details.

Radio and Electronics Association of Southern Tasmania

It was great to hear from Warren VK7FEET on his adventure in the sub-Antarctic to help with the Macquarie Island pest eradication program as a communications officer. Warren was not the only radio amateur down there. Matthew VK5FLIP and Denis ZL4DB were also there. 2 m contacts were made on the island. We heard about Warren's fascinating trip at a recent ATV Experimenter's Group night.

Over 22 to 24 June 2010 (UTC), REAST activated the Centenary callsign VK100WIA from the historic REAST clubrooms. Over the three days, nine operators made 415 contacts from all around the world using CW, PSK31, SSB and FM modes. Three stations connected to three different types of HF antennas along with logging computers gave many foundation licensees some HF operating experience using different setups. Contact highlights were Palmer base,Antarctica on the Palmer Base, Russia, Costa Rica, Durban/South Africa, Japan, Spain and many others along with every state in VK. On Thursday morning the author was interviewed by Michael Veitch on 936 local Breakfast program and then later on Chris Wisbey's Weekend program.

A great big thank you to all those amateurs who helped the author with the activation including: VK7TBM, VK7RO, VK7FEET, VK7JGD, VK7ZGK, VK7FRRT, VK7FPJB and VK7HGO. **ar**

Some of the operators at the REAST Activation of VK100WIA.

South East Radio Group (SERG)

Tallyho at Mt Gambier

Andrew McKenzie VK5KEZ

The Australian Fox Hunting Championships, run in Mount Gambier over the June long weekend by SERG, were very successful. And Bevin, a 40 year competitor, was there again!

Two 'hounds' on the hunt in the Valley Lakes area in Mount Gambier.

Marta VK3FTZL hunting near Umpherston Sink Hole in Mount Gambier.

NUMBERS were a little up on last year which is good to see and for some that could not make it, others popped up. We hope they can all come back next year.

The events over the weekend were very competitive but it was nice to see the friendly rivalry and the loaning of equipment between teams.

There was a little bit of mischief with attempts to lead other teams astray but it was all in good fun. Feedback from the competitors was good with the only complaint being that some events were not challenging enough. We will take that all on board and welcome feedback from any of the competitors at any time.

A new method of recording scores was tried and was a great success.

Bevin VK5TV checking out his equipment.

It took the pressure off the foxes and there were no issues for the competitors either. They were very accepting of the changes. Similar changes to the Sniffer hunts were also well received and made it easy for the scorer to tally after the event.

This year was kind of special as it was the 40th year that VK5TV Bevin has competed. SERG was very proud to be able to present Bevin with a certificate of achievement and appreciation for all the years of competing in the Championship.

Stories of Bevin's past glories were recalled and some of us who were not there are still trying to picture the generator running on a trailer behind the car to power the equipment while Fox Hunting. We are already planning his 50th year speech. Special thanks to his wife Barbara who has supported him in all these events.

The techno kids' equipment is getting better and more sophisticated and so on the VHF/UHF stuff they are finding the fox quicker every year. We will have to find ways to make it more challenging. HF frequencies provide more of a challenge and a lot of fun was had on 80 m and 10 m.

Victorian team VK3BLN took out the honours this year, with VK3FAST and VK3BLI in second and third. All up there were eight teams for the weekend but some did not compete in all the events.

SERG would like to thank all the competitors and the SERG members who gave up their time to play fox. It made for an interesting and somewhat entertaining weekend.

We sincerely hope you all enjoyed yourself and return again next year for the 47th Australian Fox Hunting Championship.

ar

Some of the hunters lined up for the start.

Suzanne VK3FSZI still looking for that missing fox.

Group Photo on Saturday 12 June prior to first sniffer hunt.

VK6news

Keith Bainbridge VK6RK
vk6rk@wia.org.au

Welcome once again to the latest edition of VK6 Notes. This month's ramblings will have arrived in your mail box a few days after the state's premier amateur radio event: *Hamfest 2010*. Hopefully most of you will have made the exodus to Ashfield and picked up a bargain or three. There were many excellent prizes in the raffle this year so perhaps you were one of the lucky ones? I will give a full rundown on the event in next month's column, with some pictures! Now for the input from around the state for this month. We will start with one of the most remote areas in WA, radiowise that is; Tom Price.

VK6 has a Top Town – literally. It is a place called Tom Price and it is 747 metres above sea level. Overlooking Tom Price is a mountain called Mount Nameless. From its top you can overlook the town, and the Tom Price pit, which is one of the earliest iron ore mines in the Pilbara. Tom Price was a hot bed of amateur (and CB) activity in the 70s and the early 80s. Sadly it faded away. But now it is back, and there are plans to establish a two metre repeater there. It will have an antenna 1100 metres above sea level. The repeater will identify as VK6RTP, and the frequency will be 146.625 MHz if the licence is accepted. There are plans to link it via IRLP/ EchoLink. Once established it will be the highest repeater in VK6. Well, it is almost impossible to build one at a higher elevation in VK6!

The setup is simple, two Simoco SRM9000 radios (commercial radios) set for 20 watts output into a 6 dB vertical antenna and a NHRC-4 repeater controller/ID unit. When funding permits it will also have IRLP. This has come together with the help of Steve VK6HV and Mike VK6BHY who were able to help out with the filters and the NHRC-4 controller, and Craig VK6FLAM for the motivation, vertical antenna and delivering the filters. Without these guys it would be just an idea in my head. 73 de Jono Bucktrout VK6NDT.

Thanks Jono and I certainly look forward to using the repeater when next in town.

The Peel Group in Mandurah sent me this report of their activities in the John Moyle NMFD, and updated their information. Somehow it never made it in time for last month's column so it is here this month!

Peel Amateur Radio Group (PARG) - Western Australia, VK6COM and VK6ARG. Who is PARG? You may have heard us on the air during the last three John Moyle MNFD contests. In the three years that we have participated we have done rather well for being in the sparsely populated 'West' coming in 9th and 8th respectively in the 24 Hour Portable Operation, Multiple Operator section.

PARG was formed in 1982 to bring amateur radio users and electronic enthusiasts together. PARG encompasses the areas from Kwinana through to Waroona in the South, incorporating the cities of Rockingham and Mandurah. We are a small and friendly club and slowly growing with approximately 25 members.

Please feel free to come along to any of our monthly meetings if visiting the Mandurah area. We welcome everyone along. Our meetings are on the second Monday of every month, 19:30 at SES HQ, 95 Park Rd, Mandurah.

PARG have just acquired a new Mobile Communications Trailer, with the help of Lotteries West, which we used in the 2010 John Moyle. This was a great asset with our newly installed mobile tower. We are proudly supported by SES Mandurah, Mayday, Alcoa Pinjarra and, of course, Lotteries West.

If you would like to know more about PARG please head to our temporary website http://www.wia.org.au/clubs/vk6/PeelAmateurRadioGroup/index.php

Thanks for the update Michelle VK6MLW.

The Northern Corridor Radio Group Inc (NCRG) held their AGM on Tuesday 22 June and this resulted

PARG Lottery West sponsored trailer.

in a new committee being formed. Just for the record the Secretary John VK6JX decided to continue his excellent work for another year, however Wayne VK6EH decided that two years as President was enough for any man and we thank him for his sterling efforts in progressing the clubs activities and profile. There was certain reluctance among members to put their hand up for Wayne's job and in the end a sucker, sorry a replacement was found in the shape of yours truly. This is my third spell in the job so perhaps it may actually be 'third time lucky'?

Tony VK6AJL accepted the Treasurer's post and the remainder of the committee was pretty much as it had been last year. Hopefully we can all do the club justice over the next twelve months. Two NCRG members are representing Oceania in the WRTC contest in Moscow in July. Kevin VK6LW and Bernd VK6AA will have competed along with approximately 100 other amateurs, each representing different areas of the world in this major radio sport event. The other Oceania pairing from Hawaii unfortunately had to withdraw, so Bernd and Kevin are carrying our hopes. They have worked tirelessly over the past twelve months to achieve their high scores in many contests to qualify them for this honour. Over half the teams competing this time are using Elecraft K3 radios, just like in our club shack! I will report more on the activities of WRTC when the results become available.

A few VK6 members made the pilgrimage to Canberra for the 100 year WIA celebrations and Bob Penno VK6PO sent me this thankyou note.

Congratulations and many thanks to those people who worked so hard and diligently to provide such a wonderful weekend of activities befitting the 100 year anniversary of the Wireless Institute of Australia AGM. It was our pleasure and a privilege to share, along with the other one hundred and fifty or so other VK amateurs, as well as our distinguished overseas visitors. Special thanks go to the sponsors ICOM Australia, Yaesu through their local representative, Dick and Pip Smith for their contribution on a wet Sunday and a particular thanks to the VK1 amateurs, and others, who helped with the transportation of interstate and overseas visitors between venues. A weekend to remember!

Thanks Bob, maybe one day soon we will be able to host the AGM in WA?

In closing this month I would like to start a new segment in the column 'Show us your Shack'. If you would like your shack featured in this column in future months just send me a photo, of at least three megapixel quality, and a short rundown on your shack and antennas and I will endeavour to get one shack a month at least printed in the column. I will start it off next month, so please send in your photos.

Hopefully many of you will have said 'Hello' at Hamfest, so until next month.

73 de Keith VK6RK

vk6rk@wia.org.au

Shepparton & District Amateur Radio Club

Hamfest 2010

on

Sunday, 12 September, 2010

at

St Augustines Hall, Orr Street, Shepparton.

Vic Roads Directory Map 273, reference M8

First class catering - Entry ticket includes a door prize raffle.

Entry only $5.00.

Doors open: Traders at 8.00 am - Public at 10.00 am.

Sales New: Importers and suppliers of Amateur Equipment and Accessories.
Sales Used: Pre-loved ham gear and accessories.
All inside and under cover.
Tables available at $10.00 each.
Table bookings: Les VK3TEX at lestatar@bigpond.com
Toby VK3PNF at vk3pnf@bigpond.com

VK2news

Tim Mills VK2ZTM
vk2notes@arnsw.org.au

Successful Mid North Coast Field Day

In June the **Oxley Region ARC** held their 35th annual Field Day. It was a great success although attendance was down on the previous year. Those who did attend enjoyed good weather and all the usual field day activities over the two days. The Club made full use of the WIA Media Kit for promoting the weekend. The results included three radio interviews, two with the ABC. The first was a five minute spot in the local breakfast program and the other was twenty minutes in the Statewide afternoon program. The third was live from the Field Day on the commercial Super Radio Network on the Sunday morning. National WIA President Michael Owen VK3KI attended and provided the last two interviews. There were two articles in the local newspapers, the Port Macquarie News and the Port Macquarie Independent. There were two TV news reports, on the regional NBN and Prime networks. The publicity did attract some additional visitors to the Field Day, including a few prospective Foundation licence candidates.

Following on from this success with the Media Kit, it is recommended all affiliated clubs and groups check out the material available from the WIA Centenary Committee. The Media Release template simply requires that you fill in the blank spaces with your details, follow the instructions and seek publicity for that next event and your club. The kit includes all the necessary supporting documentation.

WIA President Michael VK3KI brought with him a sample of the Centenary Merchandise and spent most of the time signing up some new members and discussing WIA matters with attendees. A most beneficial weekend for all involved. The field day at Port Macquarie was a WIA Supported Centenary Activity.

Next year's Oxley Region Field Day will be on the Saturday and Sunday of the June 2011 Queen's Birthday holiday weekend at the Tacking Point Surf Club at Port Macquarie. This change in venue has been brought about by next year's Wintersun Festival being held in the central business area of Port Macquarie at this time. As this is a very large event which is expected to draw many visitors, it is suggested that intending 2011 Field Day attendees should arrange any accommodation required in Port Macquarie well in advance.

Upcoming Field Days

Field days this month include the **Summerland ARC** SARCFEST at the club rooms at Richmond Hill on Sunday the 8th. On Sunday the 22nd, the **Blue Mountains ARC** will be holding their Winterfest at their current meeting place, the VRA building in Simeon Road, Orchard Hills (near Penrith). Into next year the **Mid North Coast ARG,** which has a new committee in place, and has advised that the annual EXPO is scheduled for Sunday 30 January at the usual venue. The following month (February) is the **Central Coast ARC** event at the Wyong racecourse. There is some indication that the date will be last Sunday but confirmation is still to be received.

Old Australian Callbooks

Ian VK2ZIO from the **Kurrajong Radio Museum** is trying to build up a full set of the annual callbooks. He is missing most of the period from 1950 to 1970. Anyone with copies from this period who would like to donate these to the Museum should contact Ian by email at vk2zio@yahoo.com.au Telephone 02 4573 0601 or post or visit the museum at 842 Bells Line of Road, Kurrajong Hills 2758.

A landmark to disappear

The former Channel 7 TV complex at Epping Sydney has long been closed and recently the dismantling has begun. The extensive satellite antenna farm is no more. The site had a tall tower to carry the steerable microwave dish for the OB operations. This tower at Christmas time provided the support for strings of coloured lights in the form of a giant Christmas tree. The site of many acres is to become housing.

VK2 Clubs are encouraged to make use of the **VK2WI** news sessions to advise their activities. This provides a wide audience. News should be emailed to news@arnsw.org.au Upon receipt you receive an acknowledgement email. The **Orange and District ARC** meet on the first Friday evening in the Air Training Corps building in Warrendine Street Orange. The **Waverley ARS** besides the first Saturday afternoon and third Wednesday evening have a working bee on Tuesday – all day – you are invited to attend but call first on their repeater – Paddington – to ensure someone is there. The **Oxley Region ARC** has a working bee on Wednesday mornings. Check details on their 6700 repeater. The **Home Brew and Experimenters Group** of ARNSW has a net on the third Tuesday evening, first on Sydney repeater 7000 at 1930 followed at 2000 by the net moving to 80 metres on 3686.4 kHz. **Blue Mountains ARC** has a Tuesday evening net on 3543 kHz at 2000 hours.

NSW WICEN will be providing communications to the 30th Shahzada Horse Enduro in the week 23 to 27 August. Then with the 'Trek for Timor' on the weekend 18 and 19 September.

ARNSW has the next Trash & Treasure at the end of September – the 26th – Donations and Deceased Estates are always welcome. We do however have to be a bit choosey and not accept computer based items or those of a domestic entertainment nature, there is little interest in these. Also electrical equipment in general is not wanted as these items have to be inspected and tagged unless they are rendered inoperative and intended as spare parts. This still leaves amateur and disposal equipment and components for construction and these eagerly find a new home. Leave any messages on the office phone 02 9651 1490. Major items being offered can be viewed on the ARNSW web site www.arnsw.org.au under Disposals.

73 – Tim VK2ZTM **ar**

Amateur Radio Victoria News

Jim Linton VK3PC www.amateurradio.com.au *arv@amateurradio.com.au*

VK3 QSL Bureau

For many years the QSL Bureau has been well publicised and full details are in our website. Yet in just one week last month there was a flood of inquiries about this service.

The sole reason was the special callsign VK100WIA taking to the airwaves in May to celebrate the Centenary of Organised Amateur Radio in Australia.

The WIA Centenary Committee sensibly automatically QSLed all contacts via the Bureau. An email news item by ARV reminded VK3 radio amateurs that to get their Centenary memento VK100WIA QSL card required registration with the Bureau.

That drew 20 inquiries at the VK3 QSL Bureau. Most were new registrations elicited by the free WIA membership service, plus a few wanting to confirm or modify their details .

VK3WI is all set for ILLW

The International Lighthouse and Lightship Weekend continues to gain popularity around the world and appears to be headed for a record number of registrations this year.

The friendly non-contest event is run by Scotland's Ayr Radio Group GM0AYR and Kevin Mulcahy VK2CE who runs the illw.net website and others who are fully dedicated to ensuring its ongoing success.

The 11th ILLW is on the weekend of 22 and 22 August. Amateur Radio Victoria VK3WI will be activating the Williamstown Lighthouse and Timeball Tower on both days.

Our Events Coordinator, Terry Murphy VK3UP (vk3up@amateurradio.com.au) invites visitors to the site and particularly Foundation licensees who want to experience and be involved with this event.

An interesting trend in VK this year is the number of lighthouses that will be put on air for the very first time. And there are plenty of lighthouses still available if anyone wants to go portable from one of them.

Visit the illw.net website not only to see the list of already registered lighthouses to contact on air, but if you're able to join the weekend use the online registration facility.

Membership inquiries

To join and support the statewide organisation Amateur Radio Victoria costs $30 for Full or Associate membership and $25 Concession, for two years. New members are most welcome and an application form can be found on our website or posted out on request.

Foundation classes

Training and assessment sessions for the Foundation licence will be held on the weekend of 18-19 September at Ashburton.

If you know someone who could be interested in becoming a radio amateur, or need more information then contact Barry Robinson VK3PV on 0428 516 001or foundation@amateurradio.com.au

ar

tts systems

www.ttssystems.com.au

Phone: 03 5977 4804 Email: info@ttssystems.com.au

Your Australian reseller for:

BUDDIPOLE

LDG ELECTRONICS

Palstar

...America's Best! TEN-TEC

Ham Radio Kits from the US

VIBROPLEX

tts systems will be at the Shepparton & District Amateur Radio Club **Hamfest 2010** on Sunday, 12th September 2010.

Look for us there!

SGC

Meanwell power supplies

Diamond products

Daiwa products

Technical books

Amidon products

Custom cables made to order

As always, you can get a free catalogue - just call!

Cover Story

ILLW 2009 A weekend to explore

Glenn Alford VK3ILH

International Lighthouse/Lightship Weekend is a great opportunity to get out of the city and explore some remote areas of our coast. The coastal towns also normally offer loads of history, given their early development. These towns were in some cases the only link to Europe, transit and logistic points to the old world.

Portland was one such town; it was Victoria's first permanent European settlement back in 1834. The heritage and early architecture has in most part been retained. It is a delightful town somewhat sheltered from Bass Strait by Point Danger. There is a lot to see and do here, including great coastal walks to enjoy.

The Cape Nelson lighthouse acting as an antenna support.

Aside from the pretty historic township, I am here for the lighthouse. Cape Nelson lighthouse is located 13 kilometres south of the town, really a city. Along a very rugged stretch of coast, constructed in 1884 from bluestone and painted traditional white, the lighthouse stands at 246 feet (75 metres) tall. The lighthouse was named after Lieutenant James Grant's ship, the Lady Nelson.

At the base of the light is the generator building, and towards the coast the historic Flag Room, storage of flags for communication with passing ships, well before radio. A large stone wall connects the lighthouse back to the old storeroom and stables, now converted into a great café, which is highly recommended. The wall was constructed to give the lighthouse staff shelter from the elements and is still in use today. The site now offers accommodation in two fully restored lighthouse keeper's cottages, completed in September 2009.

I established my station in the Flag Room, with commanding views of Bass Strait. There were plenty of locations for the Cushcraft R5 vertical, and wire antennas. Power was sourced from inside the base of the lighthouse. Given the size of the site, the lighthouse was shared with some other amateurs, Trevor Close and Ian Mason. They established themselves by the cottages under renovation, but came well prepared and equipped: almost like a military field operation complete the field headquarters and accommodation in the caravan, along with an impressive array of antennas. A serious set up.

Both stations operated well, with little signs of interference. Noise levels at the lighthouse delightfully low, ideal for working those weaker stations – another benefit of working these weekends away from the city. I worked about 60 DX stations, including South Africa, Europe, Canada, United States, and New Zealand, along with many VKs.

What was also terrific was the interest from the public, with lots of local visitors, now exposed to the hobby. Most were amazed at the number of contacts and the locations around the world, using such old technology. "What, no internet connection?" It was great exposure for the hobby.

Spending sometime here made one

very aware of the sheer beauty of this rugged coastline, and surrounding area: the dominant lighthouse with its light beam reaching seaward, the explosion of colours of the setting sun. It is a photographer's delight, nature at its best. Always bring the camera on these weekends. It was truly a satisfying weekend.

Now I need to start thinking and planning this year's International Lighthouse Weekend, 21 and 22 August. This year it will not compete with the RD contest, so I would expect it to be a little bit different. The ILLW is not a contest, but a great event shared by amateurs around the world, and a tribute to lighthouse keepers assigned to history.

Participating in this great weekend is easy: select a location, and register the site on www.illw.net You can also find more details about the weekend on the web site. You may even think about sharing a site, if it is already registered. Information on Portland can be found on www.visitvictoria.com and lighthouse information at www.lighthouse.com.au

Enjoy...

ar

Editor's Note

As this issue of *AR* goes to press, there were 52 VK lighthouses listed as planned to be 'on air' on 21-22 August.

VK leads the world in entries so far this year, but there are still plenty of sites to go around. The table indicates possibilities, perhaps near you.

As you can see from Glenn's story it doesn't all have to be done by 'roughing it', although some lights are camping or day visiting only.

For more details go to

http://illw.net

State	Planned to be on air	Lighthouses in State*
VK2	16	37
VK3	11	23
VK4	10	30
VK5	4	25
VK6	5	28
VK7	6	25
VK8	0	5

*Source: Lighthouses of Australia Inc website

The author operating in a relaxed style in the Flag Room.

An outside view of the Flag Room, complete with a well prepared promotional poster.

A view of the comfortable accommodation available on site at Cape Nelson.

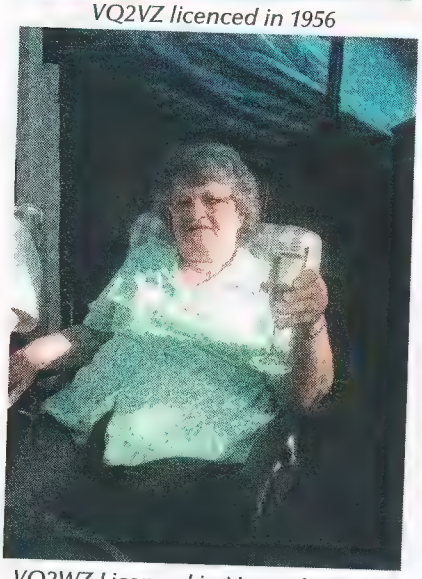
Geelong Amateur Radio Club - The GARC

Tony Collis VK3JGC

Is there a Ham Radio gene?

Andre VK3AVZ gave a talk, around a power point presentation, of the amateur radio activities of his parents VQ2VZ and VQ2WZ, grandparents and numerous family members on the African continent during the period 1958 to 1963.

VQ2VZ licenced in 1956



VQ2WZ Licenced in November 1958.

The telecommunications law in Rhodesia in the 1950s was that:

If the primary station holder was "Technically qualified", the spouse could get a licence to operate the station provided they passed the Morse test and then had to operate for the first 12 months only on CW.

VQ2VZ also sent telegrams via CW to Belgium post offices for the families of people stranded in the Belgium Congo during rebellion in 1961, on behalf of the Post Office, due to their overloading.

Amongst the numerous certificates acquired, Susan VQ2WZ came 2nd in the World CQWW all band phone contest in 1960, 3rd in 1961, 2nd in 1962 and 1st in 1963. The equipment used was a Labgear 300 transmitter, built from a kit, and an HRO 5T receiver; the latter of which Andre still has.

On the basis of her third placing in the 1961 CQWW contest, Susan was invited to the Women's Ham Radio Convention in New York where she made a speech to an audience of some 5,000 ladies.

Northern Rhodesia gained Independence from Great Britain in 1964. It then became very difficult for Andre's parents to run an amateur radio station after that, due to local politics and military issues; although both obtained their Zambian call signs 9J2VZ and 9J2WZ.

In 1980 Andre's parents moved from Zambia to South Africa where they were informed that their Zambian qualifications, for a radio licence, were not recognised and they would both have to pass the UK City and Guilds of London Radio Amateur Exam and re sit the Morse test. In 1991 they were awarded the call signs of ZS6CVZ and ZS6SVZ.

In respect of the genetic factor, Andre's grandfather was ZS6BDX, his grandmother ZS6AUH, father VQ2VZ, mother VQ2WZ, sister ZS6BVZ, brother in law ZS6PSM, two nephews ZS6SGM and ZS6AAU he also had two uncles VQ2EZ/ZS5CX and ZS6AXC. Along with Andre and Jane VK3MJS, the hobby now enters the *fourth generation* with Ruben VK3FRJS.

Museum Weekend

The GARC set up VK3ATL, the club station call sign, at the Queenscliff Maritime Museum in the Marconi Hut covering 160 m to 2 m.

Once the skeleton slot beam, provided by Peter VK3ZAV, was erected, the use of the club's IRLP node on 145.475 simplex was to prove

concludes page 56

Dallas VK3DJ operating the TS-2000.

VHF/UHF an expanding world

David Smith VK3HZ – vk3hz@wia.org.au

Weak Signal

David Smith VK3HZ

Mid-Winter VHF/UHF Field Day

The recent mid-winter field day saw a good level of activity despite the middling to awful weather conditions in some parts of the country (exactly what you would expect for mid-winter!) As of four days prior to the closing date, the Contest Manager had received 60 logs, which must be something of a record.

Some brief reports from participants:

From Andy VK5LA:

My first winter field day but won't be my last! The weather was good where I was, not too windy, but I feel a relatively poor turnout in VK5, but there were still a few stations around.

Only operated for the first 8 hours, then packed up and went home, only because of poor preparation on my behalf - It'll be 24 hours next year. There seemed to be a good number of stations around on 23 cm, which is great! Alinco's new DJ-G7 23 cm handheld probably has a bit to do with that, and I had some great contacts with 1 watt stations back in to Adelaide from PF85WF. I had 33 elements and 10 watts. Andrew, VK5AKH was S9+60 on occasions on 23 cm.

The biggest lesson I learned (I'm always learning) is you can have all the gear in the world, but if you're not comfortable and warm, you will soon lose interest!

From Lou VK3ALB:

We made our first attempt at a field day in Summer 2009 and the lesson we learned was to protect ourselves from the elements be it the sun, wind or rain. I was lucky enough to find a run down A-frame van that has been our field day shack ever since. It's not perfect but it really does make our field day outing much more enjoyable. Even though it was cold and rainy at times over the weekend we still had a great time.

From Nik VK3BA:

I went out with VK3ALB and co. The most satisfying part of the FD experience was packing up on a dark and rainy Saturday night... the true test of an amateur!

From Compton VK2HRX:

I was happy with the number of stations in and around Syndey. Wasn't real busy but enough to make it worth-while. We could always do with more!

Made a couple of 23 cm contacts down to Canberra from Carlingford in the North Shore of Sydney which were the highlights of my 8-hour stint. Had them S5 with no preamp at one point at I think around 70 W. I was running 10 W from the IC-910H with a 55-element loop Yagi on a rotator. Didn't bother with the 23 cm linear and preamp as its always local stuff in winter, doh!

Made over 100 contacts across 6 m, 2 m, 70 cm and 23 cm. 52.150 was almost busy at one point. I also worked split to 50.150 for one contact so don't forget us 52 MHz operators in the next contest!

Weather brilliant, a little wind but mast was OK. Got visited by the boys in blue (was set up in a public car park). I had bunged a WICEN magnetic badge on the side of the Cruiser, he had a look then drove off.

Interestingly I also had about 10 passers by who stopped to have a chat about what I was doing. Next time I'll take a few Foundation Manuals with me and hand them out! I didn't forget anything, everything worked, nothing broke and I set up in 60 minutes and packed up in 30 minutes.

From Rob VK2GOM/G0MOH:

My second field day in VK... a summer one and a winter one so far. I'm not new to contesting though; I did quite a few VHF QRP contests in the UK where I entered, but here in VK it's only for fun - I don't enter the logs.

I managed to attract the attention of the Park Ranger where I was set up, who came over with a walking gait that suggested he wanted to clear me out of the place. Instead, I introduced myself with a handshake and told him more about it. Once he realised I wasn't a terrorist, or going to kill anyone with it, and it was a hobby and not conducted as a part of a business, he happily went on his way. It seems microwave dishes can scare the uninitiated! Fortunately I did not have to resort to my "So where does it say that?" line…

An enjoyable day out, not as many stations heard as the Summer field day, but good fun all the same.

I was only out a couple of hours and got a handful of points and 18 QSO's. I might have a more serious attempt in the Summer one.

My 10 GHz rig for the contest was solar powered with a BP 20 W solar panel. Any others operate for the Field Day on solar power? Should there be another 10x points multiplier for solar powered stations?!

From Iain VK5ZD:

I operated from the South Hummocks on Saturday and a local hilltop for an hour and a half on Sunday morning. As expected, the weather was cold and damp. In an effort to remain as comfortable as possible, I arranged things so that I could do all the operating from inside the car.

An FT-897 was for 6 m, 2 m and 70 cm, and an FT-290R was the IF for the 23 cm, 13 cm, 9 cm and 6 cm transverters and an FT-60 H/T was for 3 cm. Add one old laptop for logging and I could operate in relative comfort.

From Doug VK4ADC:

Up here in southern VK4, there was some activity but the number of stations around was not enough to keep you handing out numbers and staying focussed on the FD. My log shows 80 contacts across 6 m, 2 m, 70 cm and 23 cm - including 7 VK5 callsigns courtesy of some 6 m Es - for the first 8 hours. The few club stations were a big help as they were operating the same bands (some plus more) so were around for the 3 hour repeats.

Unfortunately VKCL did not process my log entries correctly - it created the log file as section E - 24 hour home station - instead of section B - 8 hour portable single operator. Beware that your log is correctly created before you email it in.

We need to get more operators, maybe some F calls, interested enough to participate and hand out some numbers, even if only on 2 m and 70 cm FM. They might get to like it and do even more the next time... A report on my outing can be found at http://www.vk4adc.com/2010wfd.php.

Roll on November 20/21 for the Spring FD!

From Andrew VK1DA/VK2UH:

I arrived back from a Europe trip on Friday night before the contest and got back to Canberra the next day. Unable to mount a decent portable operation, I just operated from the car.

Made 21 contacts, split more or less evenly between 144 and 432.

I was really pleased to hear several field stations on the air in Canberra so it seems the third year of this event has been quite successful.

Well done to all those who operated in the cold and wet conditions, and enjoyed themselves in spite of conditions. Much better than staying inside and watching TV!

From Gordon VK3EJ:

On Sunday morning, I worked 18 stations on 2 m SSB only and heard at least three more. I don't think I ever, in 28 years here, worked that many on a "normal" propagation field day from my allegedly "good" location at Berowra Heights. I then had up to 7.5 dB more antenna gain and 6 dB more power plus maybe a dB and a half better receive noise figure. Longest distance was to Kerry VK2BXT at 500 km.

From John VK4TJ:

This was probably my best ever dead band contest result. I haven't moved, so I put it down to F calls being a bit keener than us old geezers to freeze their extremities off on a mountaintop under lacklustre band conditions.

I also note that virtually everyone (except me) is now packin' 2.4 GHz and 10 GHz gear. Even 23 cm is evidently considered DC these days...

From Dave VK2TDN:

There wasn't one F call QSO in my log for the winter or summer FDs but I still had a much better day out than the summer one as far as QSOs. The weather wasn't kind, a howling freezing gale in the Blue Mountains made the day unpleasant trying to stay warm and keeping the antenna poles vertical!

Field Portable 23 cm EME

Bob VK2ABP has set up a substantial 23 cm portable EME station. He reports:

When I think of EME I think of big dishes or other huge arrays pointing up to the moon, tracking it across the sky. When one starts to search for EME online it is immediately obvious that there can be a huge passion for it by some people. Most of what I found was HUGE, far too big for my place in suburbia, even if I am in a country town with a decent sized house block. Additionally, I am in the middle of lots of landscaping at home, but the final outcome of the work at home will mean I will finally be getting the Aussie Guy's mandatory backyard shed. Until such time that the landscaping and shed construction are complete, there is only one real option for me to pursue EME – going elsewhere.

The elsewhere I have been going is out to Dave's (VK2JDS) QTH. As most readers have probably seen in AR already, Dave VK2JDS is quite active with EME communications. He has been great with encouragement and assistance in my quest to experiment with EME. I have been out at his QTH, enjoying the benefits of being out of town many times. He has a great setup there with a decent sized dish (just shy of 5 m diameter). Many times when out at Dave's we had joked about mobile EME, so on a recent trip there we sorted out a field portable setup for me to be able to use a bit more readily.

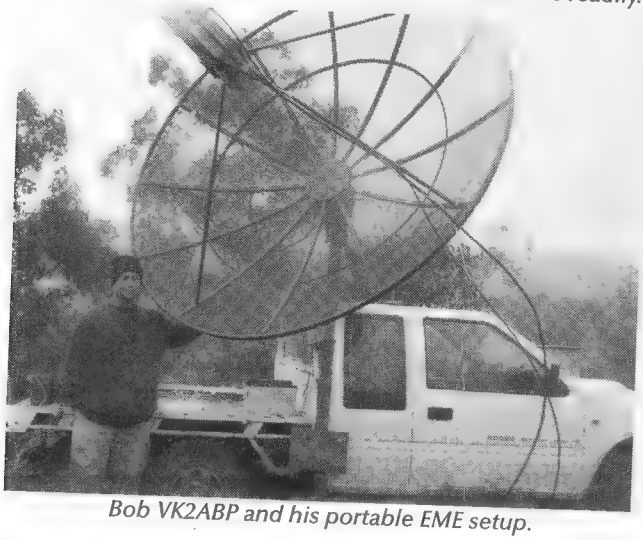
The idea is that now I can drive somewhere suitable (there are plenty of great mountain tops in the local area), and then quickly setup and be operational EME.

I am not sure how many people have done field portable EME in Australia but obviously once we figured out the logistics of how everything will mount and plug in, we had to give it a try. We did some quick tests including a listen to the 23 cm Dural beacon and then shortly afterwards my first field portable EME 23 cm contact. The contact was with Bruce PY2BS in Brazil using JT65c. Bruce has a similar setup to Dave equipment-wise, so it was great to know that I would be able to work stations that are a little more the norm rather than just the "real big guns" that you can find online.

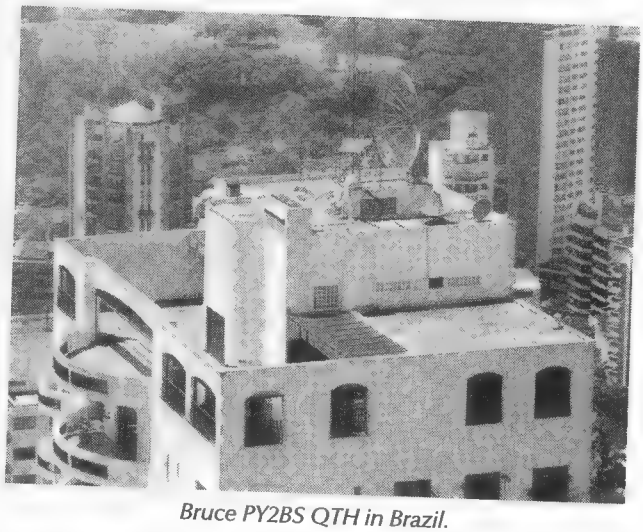
Expect to see a bit more activity from me and my portable setup, and with the amount of fun it has been I will probably end up with the current setup and a separate permanent one at home. The details of my portable setup are as follows; transceiver – Icom IC-910H, VLNA – G4DDK kit, PA – approx 40 W at feed, 23 cm feed – homebrew septum, feedline – currently LDF4-50, dish – 2.5 m mesh with elevation actuator and arm-strong rotation for azimuth, PC – 10" netbook with USB serial and audio for connection to the IC-910H, batteries for both 12 V components (transceiver, actuator, tx/rx relays) and 24 V for PA.

I think that this sort of setup proves that no one really has an excuse for not being able to be EME active. I hope to bounce signals to you all soon.

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au.



Bob VK2ABP and his portable EME setup.



Bruce PY2BS QTH in Brazil.

Digital DX Modes

Rex Moncur VK7MO

During June and July, Rex VK7MO travelled around VK1, 2, 3 and 5 opening up grid squares and conducting tests on 10 GHz digital with Neil VK2EI, David VK3HZ, Alan VK3XPD, Russell VK3ZQB and Colin VK5NY. As expected during winter, conditions were flat with no lift from ducting and rain often attenuated the signals – nevertheless 49 contacts were made from 19 different grid squares over distances of up to 585 km. Generally operations were from flat ground or near sea level with few opportunities to work from hilltops. All stations were GPS-locked allowing the use of narrow binwidth digital modes. Stations used small dishes of 45 to 65 cm diameter. Power levels varied from one watt to 10 watts with many of the contacts being made with only one or two watts at one end. The map at Figure 1 shows contacts completed.

In summary it was concluded that:

Using JT65c, tropo-scatter works effectively up to around 450 km in dry weather but the range was reduced to around 350 km in wet weather – presumably due to rain absorption. As an example VK3ZQB was worked over 453 km at -15 dB on a dry day and the following day over the same path, when it was raining, there was no evidence of his signal down to -30 dB, so at least 15 dB reduction with rain.

While 10 GHz tropo-scatter requires a good take-off, preferably close to zero degrees, it works well over the flat ground such as the "Hay plains" with the antenna just a metre or so above the surrounding ground. It seems this is because in terms of wavelengths a one metre high antenna at 10 GHz is equivalent to a 72 metre high antenna at 144 MHz.

Tropo-scatter signals were seen to be spread up to 40 Hz but this spreading varied considerably down to as low as 3 Hz. Wide tropo-scatter spreading was sometimes seen on dry days so cannot be put down to rain scatter. The visual effect of spreading on the waterfall display shows up much more when signals are strong. It seems that the spreading has a peak like a mountain shape or perhaps a bell curve and the stronger the signal the further down the sides one sees the spreading. Figure 2 shows examples of tropo-scatter spreading on VK5DK's signal at various locations. It is seen that in some cases the tropo-scatter signal spreads more to the left and in other cases more to the right and in other cases it is more symmetrical. These features may tell something about the propagation.

Aircraft scatter is useful up to around 600 km but the aircraft must be closely aligned with the path of propagation to keep the change of Doppler small. Compared to two metres, Doppler variations are magnified 72 times.

JT65c was found to be the most useful mode in that with its 10.8 Hz bins it copes well with tropo-scatter spreading – the explanation for why it copes with spreading of up to 40 Hz probably relates to the fact that the peak signal can still be separated into separate 10.8 Hz bins. JT4d also performed well on tropo-scatter requiring just 2 or 3 dB more signal than JT65c and without the Deep Search facility. Tests by VK5DK and VK3ZQB concluded that JT4f and JT4g are to be preferred on rain scatter. JT65c is preferred for aircraft scatter providing the variation of Doppler shift is relatively small – no more than 20 Hz per TX period. For more rapid Doppler shifts the new WSJT8 mode ISCAT proved useful although more testing is required.

Antenna alignment was the most difficult issue in looking for either very weak tropo-scatter or aircraft scatter with an error of just one degree making the difference between detecting a marginal signal or not. An inclinometer was used for elevation

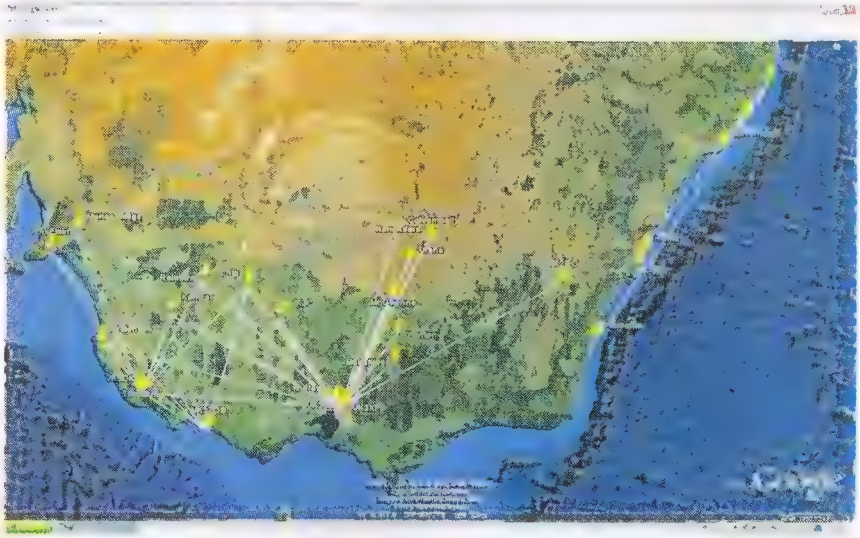


Figure 1: Contacts completed.

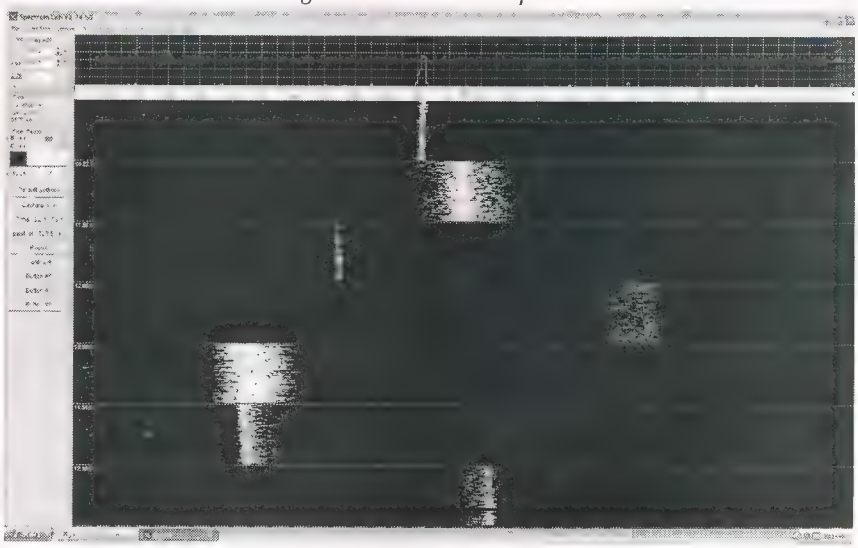


Figure 2 shows examples of tropo-scatter spreading on VK5DK's signal at various locations.

giving better than one degree accuracy. The plan was to walk a hand held GPS to define azimuth but the accuracy is no better than plus/minus three degrees and then only if one has a clear view of the sky for at least 50 metres. In practice it was found that the best method was to align on a stronger nearby station and then change the azimuth to the weaker station against a protractor. In some situations a sun shot was useful but accuracy is difficult if the sun is high above the horizon unless the elevation mechanism is exactly perpendicular.

Alignment on a feature at a known GPS position can be helpful but this was rarely possible. The problem of alignment is still the most difficult issue and some innovative solution is still required for portable weak signal operations.

One useful technique for alignment was that VK3XPD set up a TWT with 10 watts to the feed which produced a carrier which could more readily be detected. It should be noted that a carrier produces 3 to 4 dB improvement in reported S/N than a standard JT65c transmission. This is because a standard JT65c transmission spends only around half its energy transmitting the sync tone which is used to measure the S/N and is seen when looking for a weak signal. One can produce the same 3 to 4 db improvement on JT65c by using the message "@1270" which produces a single continuous tone on 1270 Hz.

Please send any Digital DX Modes reports to Rex VK7MO at rmoncur@bigpond.net.au.

ar

VK3news

Geelong Radio and Electronics Society (GRES)

Rod Green VK3AYQ

Meetings over the last three months have been not only varied but extremely interesting. Possibly one of the most interesting was the showing of a CD organized by John VK3LJS. This excellent CD was about a particular kit for an HF noise bridge. Items covered were not only the construction technique but included tutorials on the uses of a noise bridge. Topics concerning antennas and instruments for antenna measurements have always been popular syllabus items.

John also gave a presentation on the various software programs that are available for amateur radio. The message that came from this presentation was to be sure you knew precisely what you wanted and to obtain software specific to your needs.

Another evening was spent looking at the different types of antennas that are used for microwave communications. Topics covered here were horns, parabolic reflectors, and lens systems. This evening helped to educate newer less experienced amateurs on antennas used on our microwave bands.

Over the years Keith VK3AFI has given many practical demonstrations on correct soldering practices. He once again shared his expertise with us but this time with a difference. In the past he had concentrated on soldering of leaded components. This time he concentrated on surface mount components.

This is an area of construction that possibly in the future will become more and more important. Even those members of our society who have had experience with SMD devices found something of interest in Keith`s presentation.

Our activities have not been confined to our club rooms. We did visit the workshop of TonyVK3TJV. For many years Tony has been involved in the development of electric and solar powered cars.

Tony showed our members what he had been working on and also outlined his plans for what he hopes to achieve in the future.

We have also been involved in two other outside activities. Both of these were a joint venture between our society and the Geelong Amateur Radio Club.

The first was involvement in the Geelong Heritage Festival. A station was set up at the Geelong Regional Museum. The festival which is an annual event had more significance this year as it fell on the anniversary of the proclamation of Geelong as a city.

The second was the setting up and operation of a station at the Old Geelong Gaol. As regular readers of these notes will be aware the GRES has a museum located inside the Gaol. The occasion was the International Museums Weekend. Many contacts were made from this location, and the success of these two events is due to the effort of Barry VK3MBW and many others who helped set up and operate the portable stations.

The third joint venture between the two clubs was the "Solstice Dinner". This event was initially the brainchild of the GARC members. However last year the GRES members were invited to the GARC club rooms as guests. It was decided that this year the dinner would be held at the GRES clubrooms, the format being that all attending bring food to share thus eliminating the problem of catering. This event was well attended and looks as though it may continue to be a regular event on the calendar.

Visitors to Geelong are welcome to attend our meetings which are held on Thursday evenings at 8 pm local time. The club rooms are at 237A High St., Belmont.

ar

The Magic Band – 6 m DX

Brian Cleland VK5BC

The first three weeks of June produced some good winter Sporadic E openings mainly down the east coast and from ZL to the east coast. VK5 also did not miss out with some good openings to VK2 and VK4.

Brian VK4DDC reported working Bob ZL1RS 13 out of 15 days in the first three weeks of June. Bob worked several other VK4s and VK2s, good days being 10 and 13 June to VK4, 15 June to VK2 when Bob worked VK2s HN, BHO and BZE. Bob also worked Brian VK5BC on the 15th.

2 June Norm VK3DUT worked VK5s APA, RO and BC and Brian VK4EK. Around the same time Rob VK1ZQR worked Brian VK4EK, Wayne VK4WTN and Col VK5RO. Andrew VK3OE also worked several VK4s.

On 6 June Frank VK7DX worked Brian VK4DDC, Brian VK4EK and Kerry ZL2TPY. Norm VK3DUT worked Zl4LV and David VK3AUU worked Glen VK4BG.

7 June good opening from ZL to VK2 and 3.

10 June Brian VK5BC worked Brian VK4QB and Brian VK4EK.

Good opening from VK4 to VK5 on 14 June. Many completions and then on 16 and 18 good VK5 to VK2 winter openings with very strong signals.

On 19 June the band did the right thing for the winter field day with good openings from VK4 to VK2, 3 and 5. Several VK4 portable stations were actively enjoying the good conditions.

Brad VK2QO also reports:

2nd: Brian VK4EK 5/1, Kevin VK4BKP 5/7, Col VK5RO 5/7;

10th: Kevin VK4BKP 5/5, Brian VK4EK 5/5;

14th: Brian VK4EK 5/7, Harvey VK4AHW 5/7, Wayne VK4WTN 5/3, Bob ZL1RS 5/3, Glen VK4BG 5/4;

16th: Brian VK5BC 5/7;

18th: Rod ZL3NW 559, Kerry ZL2TPY 5/2, Brian VK5BC 5/5 then later at 5/9, Garry VK5ZK 5/7.

Michael VK6BHY sent details of the re-activation of the Dampier VK6RSX Beacons.

After a nine month search for a new location, the VK6RSX beacons situated in Dampier are once again transmitting on 50.304 MHz and 144.576 MHz.

These beacons originally came from Exmouth to the old Hamersley Iron open air cinema site in Dampier in March 2001. The Amateur Radio Society of North West Australia monitored them for the next eight years until told by Rio Tinto Iron Ore that they need to be relocated (along with 20+ years of AR gear stored in the rooms, much of which was donated to other AR groups in VK6). The beacons went off air in August 2009.

I then started negotiations to house the beacons elsewhere and gained permission to use an old office building (now a store) near the iron ore loading area of East Intercourse Island in the Dampier Archipelago.

While the beacons were down, I took the opportunity to clean them up, built a new rack frame and then erected the horizontal U-dipole antennae with new RG213 coax. On testing, a SWR of 1.1 was noted and the power out from both beacons was measured at approximately 50 W (depending on which meter I used).

The beacons were turned back on, Monday 14 June and were being heard within 24 hours.

The West Australian VHF Group Inc continues to maintain the VK6RSX licence and equipment with help from the remaining members of the Amateur Radio Society of North West Australia.

Rio Tinto are thanked for their support.

144.576 MHz transmitter based on a modified PHILIPS FM814 "A" Band transmitter with inbuilt power supply and VHF GROUP standard keyer.

50.304 MHz transmitter based on a modified PHILIPS FM814 "E" band transmitter with inbuilt power supply and VHF GROUP standard keyer.

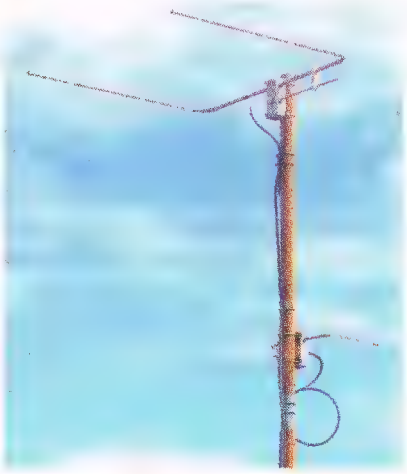
Repeater equipment and antennas pictured below:

Thanks for your efforts Michael and also Peter VK6KXW and Phil VK6ADF who have been assisting in the background. I am sure all 6 m operators appreciate your efforts in re-establishing these beacons.

Meanwhile Brad VK2QO continues to coordinate the early morning meteor scatter activity and reports the following contacts:

1st: Wayne VK4WTN at 1049 km 5/3, Brian VK5BC at 1103 km 5/2;
4th: Brian VK5BC/P Corny Point at 1258 km 5/1;
9th: David VK3AUU at 597 km 5/3;
11th: Scott VK4CZ at 826 km 5/5, Frank VK7DX at 896 km 5/2, Brian VK5BC at 1103 km 5/7;
14th: Wayne VK4WTN at 1049 km 5/1, frank VK7DX at 896 km 5/1;
15th: Wayne VK4WTN at 1049 km 5/1;
16th: Wayne VK4WTN at 1049 km 5/1, Brian VK5BC at 1103 km 5/5;
17th: Wayne VK4WTN at 1049 km 5/1, Frank VK7DX at 896 km 5/1;
18th: Scott VK4CZ at 826 km 5/7, Frank VK7DX at 896 km 5/5;
19th: Frank VK7DX at 896 km 5/5, Brian VK4EK at 1264 km 5/1, Peter VK5PJ at 1077 km 5/5.

Please send any 6 m information to Brian VK5BC at briancleland@bigpond.com **ar**



50 MHz "U" dipole omnidirectional antenna above, with the 144 MHz "U" dipole omnidirectional antenna.

GippsTech 2010 – another successful year

The annual GippsTech amateur radio technical conference started out in 1998, with a small number of amateurs in the Latrobe Valley supporting the idea of sharing experiences in building and operating on the amateur VHF, UHF and microwave bands, with the focus on working weak signals. The Eastern Zone Amateur Radio Club Inc. agreed that the idea was worth a try. GippsTech is now the main fundraising effort undertaken by the Club.

The 2010 event was held over the weekend of 10 and 11 July at the usual venue: Monash University Gippsland Campus in Churchill.

Approximately 60 people gathered at the Morwell Hotel/Motel (The Top Pub to locals) bistro for an informal dinner on the Friday evening. Plenty of enthusiastic discussion occurred, with good food and drinks meeting more fundamental needs.

Over 100 amateurs attended the conference, listening intently during the 13 presentations made over the one and a half day event. Topics varied from Very Low Frequency propagation through to building microwave filters and constructing a 10 GHz transverter. The conference opened with a detailed report on the VK9NA VHF, UHF and microwave DXpedition in January this year, which included some of the plans of the team as they prepare to do it all again next January.

The formal sessions were separated by long coffee and lunch breaks, allowing plenty of time for amateurs to catch up and to discuss the presentations and/or the progress of the latest projects. Some limited trading of radio related goodies also occurred during the breaks, including sales of the Proceedings volumes from previous GippsTech events.

Most of the attendees and their partners participated in the Conference Dinner, held at the Morwell Club. The Dinner is informal – it provides a meal at a venue with plenty of space. Apart from food and drinks, the main feature of the evening is once again lots of discussion.

The Sunday morning breaks had a little more interest, as G&C Communications and Vertex Standard were in attendance. Graham and Carol were kept busy with sales of radios and accessories. Peter VK3TE from Vertex Standard had the range of Yaesu amateur transceivers on display. Peter was kept busy answering questions regarding the transceivers and also gave away coffee mugs.

The club raffle was drawn after the coffee break on Sunday. The major prize was an FT-270R/E handheld transceiver donated by Vertex Standard, won by Chas VK3PY. Ross VK3FREB won the discount voucher donated by Icom Australia, with George VK3HV winning the discount voucher from TTS Systems. Iain VK5ZD won the 23 cm 60 W solid state power amplifier that was donated by Alan VK3XPD. Peter VK3MV and Richard VK7RO won prizes from G&C Communications. Doug VK3UM provided three sets of recent issues of DUBUS magazine, which were taken home by Justin VK7TW, Jim VK3II and Helen VK3FYAP. A number of small prizes donated by the Electronics Hive (the local Jaycar stockist) were won by Ron VK3FRDL, Tom VK3UBS, Robert VK2ABP and David VK2JDS. EZARC thanks all who donated prizes for the raffle.

On both days, conference attendees were well fed, thanks to the efforts of the Churchill Lions Club who used their barbeque trailer to good effect in preparing all the food. Having 100 hungry mouths to feed at a set time on both days must be a challenge for their team, but the effort is rewarded by the fees charged – the profits of course go into a variety of Lions projects which support the wider community.

Twelve partners participated in the Partner's Tour, with Ken VK3FKRK driving the minibus and offering suggestions as to what activities might be considered. Ken was assisted by Pauline, wife of Tom VK3QZ. Activities included visiting art galleries and a book fair, with good food and plenty of conversation also on the agenda.

Thanks to all who assisted in putting the weekend together, but especially to those who were willing to prepare and present at the conference.

EZARC looks forward to another well attended event next year – be sure to keep 9 and 10 July 2011 free!

ar

Roger VK2ZRH presented an analysis of the likely propagation mechanisms involved in the interesting 50 MHz results obtained with amateur backscatter radar developed by Andrew VK3OE.

Contests

Craig Edwards VK8PDX
vk8pdx@yahoo.com.au

CONTEST CALENDAR

August	7-8	10-10 International Summer Contest	SSB
	7	Waitakere Sprint	
	14-15	**Remembrance Day Contest**	**CW/SSB**
	14-15	Worked All Europe	CW
	21-22	International Lighthouse Weekend	
	28-29	**ALARA**	**CW/SSB**
	28-29	SCC RTTY Championship	
September	4-5	All Asia DX Contest	SSB
	11-12	Worked All Europe DX Contest	SSB
	18	**Westlakes Cup**	**SSB/DSB/AM**
	18-19	Scandinavian Activity Contest	CW
	25-26	CQWW DX Contest	RTTY

I am feeling a case of déjà vu. In the 2009 August Contests column I wrote about my impending move from Adelaide to Alice Springs So here we are in the 2010 August edition and I am delighted to say that I am on the move again, albeit temporarily to Townsville I still have my connections to the Northern Territory as I have taken a year off work without pay from my employer to spend some time working in North Queensland, but it is still a nice adventure.

The Islands on the Air contest would have taken place a couple of weeks prior to you reading this column. At the last minute I have been able to organise a little DXpedition to Magnetic Island OC-171 for the IOTA contest. Magnetic Island is off the coast from Townsville; my wife just rolled her eyes and said "now I know why you want to work in North Queensland!!" Of course she is right, so fingers crossed it was a success, details are on http://vk4ldx.blogspot.com/

Results

from Ian Godsil VK3JS, Manager

QRP May Marathon 2010

CW

VK4ZW Ray
42 points
VK2AVQ Bob
10 points
[VK3JS Ian
167 points.
Not eligible for inclusion]

PHONE

VK7VH Vince
484 points
VK2HBG Gerald
310 points
VK3KTO Mike
95 points

Harry Angel Sprint 2010

CW

VK2KJJ 24 points
VK2BHO 20
VK4JAZ 16
VK8AV 12

Phone

VK4YZ 75 points
VK4RC 74
VK5LSB 63
VK2XN 60
VK2WAY 60
VK4ZD 57
VK4FY 56
VK4GH 56
VK3PDG 52
VK4FLAE 45
VK7VH 43
VK4KKN 42
VK3VIC 38
VK3ZPF 37
VK3PRA 37
VK7JGD 29
VK4DGS 29
VK2HBG 24
VK4XZ 23
VK2IO 21
VK4ION 20
VK4YOI 20
VK4YL 17
VK5FANA 17
VK4FJAY 16
VK4ATH 16
VK4JM 15
VK4YQ 14
VK5LL 14
VK4JRO 14
VK4MAX 10
VK4JJ 10
VK4HER 5
VK4ADP 3

FRIDAY SESSION

VK5LSB 18
VK4VP 5

Mixed

VK4SN 76
VK4WM 45
VK4NP 37
VK4PL 24

Thank you all very much for your interest in and support of this Sprint Contest this year. Fortythree logs were received and this many makes it more interesting for the Manager, as well as giving him lots to do! I am sorry about the confusion about the date, but at least on the Saturday night the conditions were good, enabling reasonable contacts. The two entries for the Friday session are treated as a sub-group (see above).

Understandably the main focus today is on Phone communication, but I am sad that there were not more CW entries – partly because in the lifetime of Harry Angel this mode and AM would have been the chief operating areas, and because CW is my mode of interest. Perhaps next year you may include some Morse.

I invite you to visit my new web site vk3js.com This has been set up to keep VK contesters informed of the current rules for our contests. It is not a commentary; just an information page of rules and some results. Would you also please note my new permanent email address of ian@vk3js.com Some other email addresses may be kept for contest work only. If you would care to spread this information to others, I shall be most grateful.

Again, thank you all Those to receive certificates will get them soon and next year's date will be Saturday 23 April 2011.

73, Ian Godsil ian@vk3js.com

Remembrance Day Contest 2010 Rules

Peter Harding VK4OD

This contest commemorates the Amateurs who died during World War II and is designed to encourage friendly participation and help improve the operating skills of participants. It is held on the weekend closest to the 15th August, the date on which hostilities ceased in the southwest Pacific area in 1945.

Sat 14 August 2010,

0800 UTC to 0759 UTC Sun 15 August 2010.

Sat 13 August 2011,

0800 UTC to 0759 UTC Sun 14 August 2011.

Sat 11 August 2012, 0800 UTC to 0759 UTC Sun 12 August 2012.

Sections

(a) High Frequency for operation on bands below 50 MHz;

(b) Very High Frequency for operation on and above 50 MHz;

Operators may enter each section, but separate logs must be submitted for each section and for each Callsign used on that section by the operator.

Categories

(a) Single Operator; and

(b) Multi-operator.

Sub Sections

(a) Transmitting Phone (FM, SSB);

(b) Transmitting CW (CW); **

(c) Transmitting Open (a) and (b);

(d) Receiving (a), (b) or (c).

**Note: CW in this context means CW only; any other digital modes such as Packet, RTTY, AMTOR, PSK31, etc are specifically excluded from the contest.

Location

All amateurs licensed in Australia, and not physically within VK/P29/ZL as VKs outside VK may enter the contest, whether their stations are fixed, portable or mobile. See Rule 16.

Crossband

Cross-band and/or cross-mode contacts are not permitted.

IRLP & EchoLink

Operation via any means other than those which use direct radio transmissions is banned. This includes all means such as IRLP or EchoLink, which rely on contact via the internet.

Satellites

Contacts via Satellites is also not allowed for scoring purposes.

How to call in the contest

Call "CQ RD", "CQ CONTEST" or "CQ TEST".

Duration between contacts

On ALL bands, stations may be contacted at intervals of not less than two hours since the previous contact on that band and mode.

Contacts within same call area

No points will be awarded for contacts between stations in the same call area on HF, except on the 160 metre and the 10 metre bands, on which entrants may work stations in the same call area.

10 m FM mode

On the 10 metre band, contacts may also be made using the FM mode, using simplex only, on frequencies above 29.0 MHz only. This will be considered a different mode for scoring purposes, so an SSB or CW contact could immediately be made with the same station below 29.0MHz for an additional score.

50 MHz and above

On 50 MHz and above, the same station in any call area may be worked using any of the modes listed at intervals of not less than two hours since the previous contact on that band and mode.

VHF Category

For the VHF category, up to three contacts may be made with the same station consecutively on each band, but must be made using the different allowable modes of CW, SSB and FM. However, the different modes must be within the frequency ranges stated in the text descriptions of the latest Call Book as 'mode' only. For example, on the two metre band, RD Contest CW contacts may only be made in the range 144.050 to 144.100 MHz SSB contacts are restricted to 144.100 to 144.400, while FM contacts must be above 146.000 MHz. The national simplex calling channels (146.500 MHz on the two metre band), and the frequencies either side thereof, excluding recognised repeater frequencies, are the suggested frequencies. When changing modes, entrants must also change frequency.

Single and Multi operator stations

Both single and multi-operator entries are permitted. To be eligible as a single operator, one person must perform all operating and logging activities without assistance other than computer logging, using his or her own callsign. More than one person can use the same station and remain a single operator providing that each uses his or her own callsign, submits a separate log under that callsign and does not receive operating or logging assistance in any way other than computer logging during the contest.

Using more than one callsign

Holders of more than one licence or callsign MUST submit a separate entry for each callsign used.

Multi operator stations

Multi-operator stations are only allowed one transmitter per band/mode at any one time. Simultaneous transmissions on different bands are permitted. Simultaneous transmissions on the same band but using different modes are permitted. Any large multi-operator stations may find it more convenient to use separate band and/or mode logs.

Automated operation

Automated operation is not permitted. The operator must have physical control of the station for each contact. However CW and voice keyers are permitted, although the use of computers is restricted to logging purposes only.

Valid contacts

For a contact to be valid, a three-digit serial number commencing at 001

and incrementing by one for each successive contact must be exchanged between stations making the contact. (RS/RST reporting is not required, but if given should be an accurate appraisal of the signal).

Separate logs are required for entrants competing in both HF and VHF sections, although all allowable modes can be contained within each log.

Contacts via repeater or satellite

Contacts via repeater, satellite or relay are not permitted for scoring purposes. Contacts may be arranged through a repeater, although contact numbers may not be aired there. Operation on repeater frequencies in simplex is not permitted.

Receiving section rules

This section is open to all SWLs in Australia, Papua New Guinea and New Zealand. Licensed operators may enter this section but this will make them ineligible to also compete in the Transmitting sections.

Rules are the same as for the Transmitting Section. The only double points will apply to ALL received CW contacts, and contacts received between 0100 and 0600.

Only completed contacts may be logged, it is not permissible to log a station calling CQ.

Contest scoring

- On 160 metres two points per completed valid contact.
- On 23 cm or higher bands two points per completed valid contact;
- On all other bands one point;
- On CW irrespective of band, double points.

All scores obtained between the entrant's local time hours of 0100 and 0600 are doubled. If working into an area where the time is outside those hours, the score is doubled only for the station whose local time is 0100 to 0600 hours.

Submitting your log

Logs should be in the format shown in the sample available from the WIA website and accompanied by a Summary Sheet showing callsign; name; address; category; sub sections ; for multi-operator stations a list of the operators; total score; declaration: I hereby certify that I have operated in accordance with the rules and spirit of the contest; signed (postal mail only); date. Please supply a contact telephone number if possible.

Entrants operating on both HF and VHF are required to submit separate logs and summary sheets for both categories. Separate serial numbers for HF and VHF operation. Logs must be serial numbered sequentially on any band within the High Frequency for operation on bands below 50 MHz; Logs must be serial numbered sequentially on any band within the Very High Frequency for operation on and above 50 MHz;

VK entrants temporarily operating outside their allocated call area, including those outside continental Australia as defined for DXCC, can elect to have their points credited to their home State by making a statement to that effect on their summary sheet(s).

Logs can be submitted by electronic mail or postal mail:

By mail, send logs and summary sheets to: RD Contest Manager. Endorse the front of the envelope

"Remembrance Day Contest".
Peter Harding VK4OD
40 Centaurus Cres
Regents Park,
QLD 4118.

E-mail, PLAIN TEXT logs only may be sent to

rdlogs@wia.org.au

Electronic Logging is preferred but by no means mandatory. Those entrants with a suitable PC may wish to consider it for this year.

By using one of these programs, the file that is emailed to me can be imported easily into the scoring database program.

Links for these programs are listed below. I have tried and tested them all and with the assistance of all the creators, they have rewritten parts of their program to assist scoring. On completion of the contest you can email the VK?XXXX.csv, which is a comma delimited file format, which can be imported into our database.

See Software download links below.

In all cases, logs must be received by last mail on Monday usually within 30 days after the contest, (the date will vary from year to year).

Late entries will not be eligible. Electronically sent logs will be returned with a courtesy note, also Snail Mail will be returned unopened.

If you are sending your logs by electronic means, I would recommend that you set the flag to request "confirmation of receipt" for "when the file was read". This way you will receive two confirmation messages. If you do not receive either return message please send me an inquiry mail. For users of Snail Mail send a self addressed envelope with a request for the receipt for your paper log.

HOWEVER in all circumstances the rule above WILL STILL APPLY. So get the logs in early.

Contest results

Any station observed as departing from the generally accepted codes of operating ethics may be disqualified.

Determination of Winning State or Territory.

Scoring will be achieved by taking the total number of logs for each State or Territory, divided by the total number of licences issued in that State or Territory (excluding beacons and repeaters) as published in the WIA Callbook for that year, and multiplying by the total score for that State or Territory.

Points can only be considered where a station has submitted a valid log.

Unless otherwise elected by the entrant concerned, the scores of VK0 stations will be credited to VK7, and the scores of VK9 to the mainland call area which is geographically closest. Scores of P2, ZL and SWL stations will not be included in these calculations, although entrants in those areas are eligible for all certificate awards.

Contest award

Certificates will be awarded to the First, second and third entrants in each sub-section, both single and multi-operator; P29 and ZL. Entrants must make at least 10 contacts to be eligible for awards, unless otherwise determined by the Contest Manager.

30TH ALARA Contest

NOTE: Contest is always on the last FULL weekend of August.

Eligibility:
All licensed operators throughout the world are invited to participate. Also open to SWLs.

Object:
Participation: YL works everyone, OMs and Clubs work YLs only. One contest (combined phone and CW) run over 20 hours.

Times:
Saturday 29 August 2010, 0400 hours UTC to 1359 hours UTC
Sunday 30 August 2010, 0400 hours UTC to 1359 hours UTC

Suggested frequencies:
Bands to be used are 3.5, 7, 14,21 and 28 MHz only. The following are suggested frequencies for easier location of contacts: 28.380 to 28.410
21.170 to 21.200 and 21.380 to 21.410
14.250 to 14.280
7.070 to 7.100
3.560 to 3.590

Operation:
Single operator only (one operator per callsign). NB: If YL is operating as a second operator, her husband/partner CANNOT participate in the contest. Every individual phone or CW contact may be counted. There must be an interval of greater than one hour between contacts with any one station on any one band and in the same mode. No net or list operations. No crossmode operations. No crossband operations. All contacts must be made in accordance with operator and station licence regulations.

Procedure:
Phone:
Call "CQ ALARA CONTEST"
CW:
YLs call "CQ TEST ALARA"
OMs Call CQ YL"

Exchanges:
ALARA member: RS or RST, serial no. starting at 001, ALARA member, name.
YL non-member, OM or Club: RS or RST, serial no. starting at 001, name, and whether Club station.

OMs, Clubs & SWLs work YLs only.

Scoring:
Phone: 5 points for ALARA member contacted
4 points for YL non-member contacted
3 points for OM or Club station contacted
CW: All contacts made on CW count for double points

OM, SWL, & CLUB: 5 points for ALARA member contacted, 4 points for YL non-member contacted.

Logs:
Single log entry. Logs must show date/time UTC, band, mode, callsign worked, report and serial no. sent, report and serial no. received, name of operator of station worked whether it is a Club station and points claimed.

Logs must be signed. Logs also to show full name, callsign and address of operator, and show final score (points claimed). Logs must be legible. No carbon copies. No logs will be returned. Decision of the Contest Manager will be final, and no correspondence will be entered into.

Logs must be received by the Contest Manager by:

30 September 2010.

Contest manager:
Mrs Lesley Smit VK5LOL
PO Box 271
ASHTON SA 5137
AUSTRALIA
OR: alaracontest@wia.org.au

Certificates
Certificates will be awarded for the following:

Top score YL overall
Top score phone only
Top score Australian YL CW
Top score DX YL
Top score ALARA member in each country and VK call area
Top score OM in each continent
Top score SWL in each continent
Top score, VK YL Foundation Licence holder
Top score overseas YL CW
Top score VK Club station

Trophy
A trophy will be awarded to :
Top scoring Australian YL
Top scoring Foundation Licence ALARA member
The Top scoring VK non-ALARA member will be awarded membership to ALARA for one year.

Club stations
Operators of Club stations may use the Club call only for contacts, and *MUST* identify each contact as with a Club station. Use of personal callsigns while operating as a Club member is not permitted. A Club station will be recognized as such whether operators are YL or OM. If the Club call is used, the score will be as a Club station

Extra section of contest: VHF/UHF

There will be a certificate awarded for the top scoring YL using 2 m and 70 cm in each VK state.

The suggested frequencies for easier location of contacts are:

146.5 MHz FM 439.0 MHz FM

NO REPEATERS ARE TO BE USED.

The rules and times for the VHF/UHF contest are the same as the HF contest.

Sample Log:

Date UTC	Time UTC	Band MHz	Mode	Callsign	RS(T) & Serial No. Sent	RS(T) & Serial No. Rcd	Name	Points
29/10	0135	28	SSB	VK6DE	59001	58028	Bev	5
	0141	21	CW	VK3KS	599002	599045	Mavis	10
	0600	14	SSB	FK8FA	59025	59011	Aimee	5
	1103	3.5	SSB	VK3BSP	59130	59006	Joe (Club)	3

Westlakes Cup

Date: Saturday 18 September 2010.

Time: 1030 - 1130 UTC

Band: 3.535-3.620 MHz

Mode: SSB, DSB, AM

Power: Max Power Limit 100 Watts Standard and Advanced Licence Holders, 10 Watts Foundation Licence Holders.

Exchange:

All Stations shall call 'CQ Westlakes Cup' and the exchange shall be the operator's name and a signal report.

After the contact is made and reports exchanged the station that had called 'CQ' must QSY at least 5 kHz from the frequency before calling again. There will be no 'sitting' on a frequency and working a 'pile up'. You must QSY after each contact is made.

Valid Contacts:

Only VK or Special Prefix (VI) Australian stations may be worked.

Points A:

There will be two BONUS stations operating in the contest. The BONUS stations are the stations that hold the Cup from the previous year's contest. The stations that are the BONUS stations will be worth 1 point for the QSO plus 3 bonus points and may be worked twice in the contest, once every half hour. This year, (2010) the BONUS stations will be VK4ZD/BONUS and VK2FSBB/BONUS.

Points B:

Amateur Radio Clubs and WIA affiliated stations are encouraged to take part. Every Amateur Radio Club that takes part in the contest shall be worth 1 for the QSO plus 1 bonus point. Every Amateur Radio Club taking part shall sign with the call e.g. VK2---/CLUB. WIA station calls such as VK2WI, VK4WIT, VK2BWI etc. shall qualify under the same scoring system as Amateur Radio Clubs and must identify themselves with a /CLUB after the Call sign e.g. VK3W--/CLUB. Amateur Radio Club stations and WIA Club Stations may be worked only once in the Contest hour.

Points C:

Every station that does not fall into the BONUS categories listed above shall be worth 1 point per QSO and shall be worked only once during the Contest.

Points D:

SWLs shall be able to claim the same points as per transmitting stations. For example if an SWL hears a BONUS station they may claim 1 point plus 3 bonus points.

Contest Procedure:

At 1015 UTC on 3.585 MHz +/- QRM, the BONUS station shall make an announcement outlining the basic rules of the contest. For 2010 the station making the announcement will be VK4ZD. At the end of the basic outlining of the rules of the contest VK4ZD may pass the microphone to VK2FSBB to issue a word of encouragement and greeting to contest participants. If there are any last minute questions to be asked then questions will be answered at this stage.

At two minutes prior to the beginning of the contest, the BONUS station shall make an announcement to the affect that the contest shall begin in two minutes. At the completion of the contest, the BONUS station shall call in all stations that wish to declare their scores for the contest. If, for any reason, the BONUS station cannot perform these functions, the Westlakes Amateur Radio Club Contest Manager or a deputy will do the job.

The call-in shall be on 3.585 MHz +- QRM and shall start from the lowest scoring stations, e.g. 10 points, up to the top scorers in the contest. During this process, additional stations may be seconded from the group on frequency to take call backs from any region which the BONUS station thinks his signal may not be covering well. Such station/s may receive a special certificate in recognition of their efforts.

The object of this 'Check In' after the contest is that stations may get an idea of the contest results on the same night as the contest takes place although confirmed places will only be made known after the Contest Manager has received and checked the logs.

Logs

Logs submitted should contain the following information:

Cover Sheet:

Call Sign: Name of Licensee: Address of Licensee: E-Mail Address of Licensee: (optional) Points Claimed including BONUS Points

Log Details:

Time: Local or 'Z', call worked, signal strength of station worked, and name of operator: Signal strength given to station worked:

Declaration:

'I declare that I have operated in accordance with the rules and spirit of the contest and in compliance with my licence conditions'.

Awards:

Inscribed cups shall be awarded to the stations with the highest points attained. If two or more scores are the same, the winner will be decided by the first person that contacted a BONUS station being the winner. There will be one cup awarded in the Advanced and Standard Licence Category (100 Watts) and one in the Foundation Licence Category (10 Watts). The cups shall be inscribed with the callsign name and details of the highest points scorer and shall be retained by the contest winners.

The stations that gain possession of the cups shall become the BONUS stations for the following year's contest. Certificates shall be awarded to the first, second and third place getters in each section (Advanced/Standard, Foundation and SWL) of the contest.

Logs should be sent to:

The Contest Manager,
Westlakes Amateur Radio Club
P.O. Box 3001
TERALBA NSW 2284.

Logs via Internet may be sent to the following E-Mail address: contestmanager@westlakesarc.org.au

The closing date for the receipt of logs is Friday 29th October 2010.

ar

DXnews & views

John Bazley VK4OQ
E-Mail: john.bazley@bigpond.com

The 'old days' of gradually learning when bands were likely to open for various locations has long passed as propagation programs are now considered essential tools for Dxers. There are several available, but probably the most popular, and perhaps the easiest to use is W6EL's program, which is in the public domain, at www.qsl.net/w6elprop

It is generally held that VOACAP *(Voice of America Coverage Analysis Program)* is one of the best HF prediction engines available. It is in the public domain, but it is not an easy program to use. OH6BG has now made available *'VOACAP Online'*, a very easy to use variation of VOACAP, available at http://online.voacap.com. Just enter the coordinates of your location in Lat/Long and the DX site that you are interested in. The prediction is given as a "circuit reliability" graph showing the probability of achieving a CW-grade transmission quality between you and the selected DX station.

So what has been happening on the DX front? The Annobon Island DXpedition has now taken place after several delays but the operators had to leave earlier than originally planned. EA5BYP handled the SSB side of the operation and EA5KM the CW QSOs. During the latter part of the operation from the Island they had a big storm that destroyed the majority of their antennas, but they did manage to make 11,657 contacts during the eight days of operating.

The DXCC Desk has announced that the following operations have been accepted for DXCC credit:

3B8EME - Mauritius, operation from 2010; 9U2T - Burundi, operation from 2010; 9UPVI/9U1 - Burundi, operation from 2010; 9X0CW - Rwanda operation from 2010; 9X0LX - Rwanda, operation from 2010; YI9HOC - Iraq, operation from 2009; FT5WO - Crozet Island from December 1, 2008 through November 30, 2009.

Ken KJ2U plans to be active as HL5/KJ2U from Busan, South Korea until June 2011. QSL via Kenneth Jennings, Tongnae PO Box 73, Busan, Korea 607-600.

SV2ASP/A - Mt Athos: Monk Apollo is reported to have moved to a new QTH. He has a new tower and a SteppIR antenna will be installed later this year. Let us hope that the SteppIR is a beam and that it will be pointed our way occasionally. We understand that his current radio is being repaired, so it does not look as though we will see activity from here for some time. Monk Apollo operates SSB/RTTY and CW when he has time to get on the air.

Gerard F2JD is back in Manila, Philippines for at least six months and will be QRV as DU1/G0SHN (yes the call is correct !) on all bands and modes. He plans to try to activate some islands. He will have an on-line log at http://lesnouvellesdx.fr/voirlogs.php As usual, QSL via F6AJA.

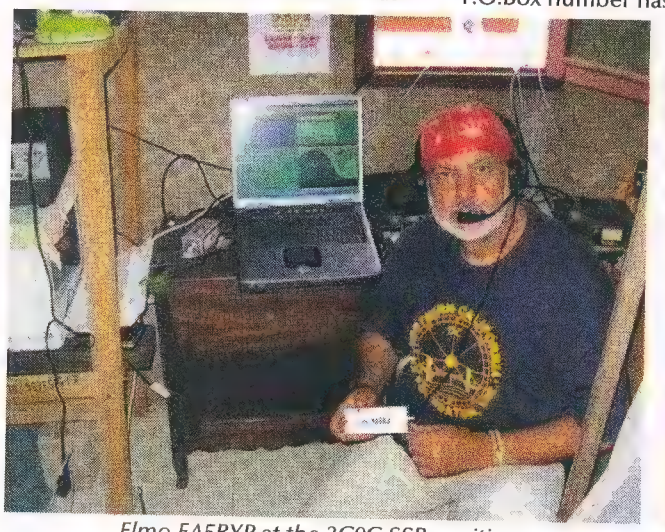
If you have worked Pierre ZS8M and are looking for a QSL, note that the P.O.Box number has changed to Pierre D. Tromp, P.O. Box 1151, Worcester, 6850, South Africa. Those who have already sent a request to POB 1481 do NOT need to resubmit. Further QSL information will be available on QRZ.com under ZS8M.

T31UR and T31X: "We are Ukrainians, persistent people": according to the Pacific Odyssey's web site (www.uz1hz.com/pacificodyssey.html) The team has found a new boat for the Apia (Samoa) to Kanton Island (Central Kiribati) voyage, casting off on 8 September.

VK6LC will be on a "DX-vocation" (We do not know if he meant "DX-vacation," but "DX-vocation" could be apt in some situations) in Vietnam August 12 to September 10, doing repair work on antennas in Ho Chi Minh City and giving out QSOs with his XV2LC callsign. He will also do some operating from "the majestic tropical Mekong Delta" as XV4LC. He will be near the famous Mekong River "Cai Rang" floating markets in Can Tho (pronounced "Cahn Kerr"). Mal says he will have a 40, 20 and 15 m delta loop and quad loop for 17, operating CW and SSB. From a farm near Soc Trang in the Mekong River Plateau he will operate primarily CW with some SSB, all portable equipment and antennas. He says, "Space not being a problem here, I will try for 160 m." QSL via VK6LC with the QRZ.COM info.

Valeriy Grabovskiy UA0QV will be in Saurimo, Angola starting July 1, says

Concludes at foot of page 51



Elmo EA5BYP at the 3C0C SSB position.

Javi EA5KM operating on CW from 3C0C.

AMSAT

ar

David Giles VK5DG
vk5dg@amsat.org

An experiment in Doppler shift

Doppler shift is one of the two things that differentiate satellite operation from other facets of amateur radio, the other being full-duplex operation. But what is Doppler shift? This month we take a closer look. There are also reports on the satellite Negai and the AMSAT-NA presentations at the Dayton Hamvention. The AMSAT-VK info-box has also been updated for the new repeaters carrying the AMSAT-VK nets.

Doppler shift

In his book 'A brief history of time', Stephen Hawking was told by someone that each mathematical formula he used would halve the book sales. He managed to limit it to one and the book still became a best seller. So I will brave the decline in readership and use one formula for Doppler shift which is $\Delta f = \pm vf/c$. Δf is the change in frequency (the Doppler shift), v is the relative velocity between transmitter and receiver, f is the transmit frequency and c is the speed of light. The change in frequency is positive when the distance between transmitter and receiver is decreasing.

So to experience the Doppler shift all you need is a transmitter, a receiver and some relative motion between them. From the formula it shows Doppler shift is proportional to both frequency and velocity. For this article I will limit to just having the transmitter and receiver within line of sight and one is fixed in position.

There are many ways of describing the Doppler effect; the ambulance siren changing pitch as it goes past, the Police radar ready to fine another speeding motorist etc.

One definition of the Doppler effect is 'The change in length of a wave (light, sound, etc.) due to the relative motion of source and receiver. Things moving toward you have their wavelengths shortened. Things moving away have their emitted wavelengths lengthened' [1]. Doppler shift is a perceived effect as the transmit frequency does not change.

To get things rolling, let us start with an experiment. You are travelling in your car at 100 km/h towards the local 70 cm repeater on 438 MHz. How much Doppler shift would you experience?

To answer this question I packed the car with my trusty FT-817, a tuning fork and a trained musician (my XYL). We parked by the side of the road and adjusted the FT-817 so the tone

AMSAT-VK
AMSAT Co-ordinator
Paul Paradigm VK2TXT
email coordinator@amsat-vk.org

Group Moderator
Judy Williams VK2TJU
email secretary@amsat-vk.org

Website
www.amsat-vk.org

Group site:
group.amsat-vk.org

About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station, Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft.

AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

AMSAT-VK monthly net
Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

In New South Wales

VK2RMP Maddens Plains repeater:146.850 MHz
VK2RIS Saddleback repeater: 146.975 MHz
VK2RBT Mt Boyne Repeater on 146.675 MHz

In Queensland

VK4RIL Laidley repeater on 147.700 MHz
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

In South Australia

VK5TRM, Loxton on 147.125 MHz
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, Echolink node 399996

In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz IRLP node 6124
VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

In the Northern Territory

VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night.

Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

received from the local 70 cm beacon (VK5RSE on 432.550 MHz) resonated with the tuning fork (tuned to 440 Hz) then hit the dial lock to avoid any fumbling. Then we probably annoyed all those behind us on the highway by speeding up to 100 km/h and then hitting the brakes while listening for any changes in tone. The result was that moving towards the beacon the tone increased in frequency, moving away from the beacon decreased the tone. The amount of shift was quite small (from A to B-flat) but the brain can differentiate a small change in pitch quite well (despite the road noise and irate horns). This website has an online test for listening to the frequency difference between two tones. Most people can get within a few Hertz [2].

Using the formula gives a Doppler shift of approximately 40 Hz from 0 to 100 km/h. The shift we heard was less but we were not driving directly towards the beacon so our relative velocity would have been less than the 100 km/h we were travelling.

Now to put this into perspective with low Earth orbit satellites. Given a satellite in a circular orbit, its velocity will vary due to its altitude. For example AO-7 travels at 7.1 km per second (25500 km/h) at an altitude of 1450 km, the ISS travels at 7.7 km per second as it is at the lower altitude of ~320 km. Satellites in an elliptical orbit have greater variation in their velocity as they vary in altitude.

Using these velocities in the above formula give Doppler shifts of approximately +/-3.5 kHz for 146 MHz, +/-9 kHz for 70 cm and +/-50 kHz for the 2.4 GHz transmitter on AO-51. The Earth's rotation also contributes a small amount of shift when operating the satellites. This is in the order of 226 Hz at 146 MHz so is small in comparison to the Doppler shift from the velocity of the satellite. I plan to explain more about Doppler shift in a future article.

Negai

By the time you read this, the Japanese cubesat Negai will have re-entered. Negai was built by students of the Soka University in Tokyo. Negai's mission was to demonstrate the use of a Field Programmable Gate Array and to take images of the Earth. It was launched on 21/5/2010 as part of JAXA's Akatsuki (Planet-C) mission to Venus. Negai was separated from the rocket while in low Earth orbit at an altitude of only 304 km. Satellites at his height suffer from drag as they orbit through Earth's tenuous atmosphere giving them a short lifetime. Negai had a CW beacon on 437.305 MHz broadcasting continuously with many reports received by amateurs worldwide. I heard it on five occasions but was unable to decode the telemetry due to rapid fading. Negai's mission was stopped on 24/6/2010 and achieved most of its goals apart from managing to obtain a picture of the Earth. The camera did work but was not orientated successfully.

Dayton Hamvention videos

AMSAT-NA hosted a forum at the Dayton Hamvention in May. Videos of five talks are available for viewing on the AMSAT website [3].

AMSAT-NA president Barry Baines WD4ASW gave a talk on the current status of AMSAT-NA covering such topics as ITAR (International Traffic in Arms Regulations), ARISSat-1, the AMSAT laboratory and outreach programs with universities. He gave an overview of how ITAR is impacting their involvement with other AMSAT projects worldwide.

Gould Smith WA4SXM gave a presentation on ARISSat-1. He talked about the design of ARISSat-1 and the changes made as it evolved, some of the challenges in building ARISSat-1 such as the thermal vacuum chamber used for testing, components and experiments, and even when the Russians wanted the callsign changed.

By the time you read this ARISSat-1 should be in Russia undergoing its final tests and integration ready for a launch to the International Space Station in August. They predict it will be thrown out of the ISS during December. There are actually five satellites being built. One is a prototype, two will go to Russia and the other two will be ready for any future available launch. The prototype was on display at the Dayton Hamvention and the transponder was activated.

K4T DXpedition team leader Mike Forsythe AC2V gave a summation of what went on in 13 months to produce the largest satellite DXpedition ever. K4T was held on Dry Tortugas off the coast of Florida during 11 to 15 March 2010. K4T was notable for its total reliance on green power and having a 14 year old operator. They used a custom designed bird-safe wind turbine and 1400 Ah of batteries that ran throughout the five day event to power all radios, rotators, computers, and lighting. The turbine was so successful that they did not need the 900 W of solar panels they took with them.

Dr. Roger Westgate W2CR gave a presentation on work underway at IBM's SUNY University at Binghamton, NY. They are designing deployable solar panels and electrical systems using pseudo-supercapacitors instead of batteries for the upcoming NextGen cubesat project. They want to squeeze the circuitry of ARISSat into a 3U cubesat and not have to use batteries to give a long lifetime.

Drew Glasbrenner KO4MA presented details on AO-7, AO-16, AO-51, SO-67, and HO-68.

Drew focussed on how AO-51 is currently being managed and will be run in the future. He gives details on the batteries; the latest on-board software AO-51 uses to self manage transmitter power and how it will be affected by eclipses during the next five years.

Final pass

The truth is we did the experiment on a quiet stretch of road and it was pleasing to successfully prove the theory. There will be some major changes in how AO-51 will be used in the future. Eclipse free periods will be a thing of the past and we will all have to get used to different operating usage to keep its batteries in healthy condition.

References.

[1] http://images.nrao.edu/glossary.shtml

[2] http://www.tonometric.com/adaptivepitch

[3] http://www.amsat.org/amsat-new/information/videoNews.php.

spotlight on **SWLING**

Robin L. Harwood VK7RH
vk7rh@wia.org.au

I have found it rather difficult to monitor lately because of a recurring ear infection. It has been extremely frustrating not being able to monitor shortwave. As I look out of my window, I can see a blanket of snow on nearby Mount Barrow. I do look forward to warmer weather as I have never really been a winter person.

Further cutbacks in shortwave broadcasting are inevitable, especially from the major players. European governments have been forced into slashing their budgets and international broadcasters reliant on government funding are bracing for further shortfalls. Britain elected a new coalition government in May and one of their first acts was to dramatically reduce expenditure. The huge BBC organisation , which incorporates the World service, had a huge reduction in their budget. This will probably accelerate the demise of the shortwave capability that remains.

Also seriously affected by this European financial crisis are Greece, Spain and several Balkan nations. Already the shortwave service from Athens has been plagued by wildcat strikes. The Spanish Foreign Service in Madrid is still operational yet it is widely expected that programming will be reduced. Romania and Bulgaria are still broadcasting while most other European broadcasters have largely deserted shortwave, opting instead for Internet streaming.

Shortwave broadcasting is likely to continue in the Pacific region from both Radio Australia and Radio New Zealand. The latter has been using DRM to feed several Pacific Island broadcasters, yet the analogue mode will be needed especially since the Fijian Government banned foreign ownership of the media and the relaying of both RA and Radio New Zealand over domestic broadcasters.

I have often commented on the apparent failure of DRM to take off commercially. Although there are some organisations employing this, it is still quite small in comparison to those remaining analogue broadcasters. China and India opted for DRM to be the standard mode for broadcasting yet they are in the minority although the two nations have 40% of the World's population. I suspect that the Chinese have chosen DRM for security reasons and by design not for external broadcasts.

I am informed that the small ethnic station, Radio Symban in Sydney, is again on 2368.5 from a new location in the south-western suburbs of Sydney. Programs are largely in Greek and apparently it is relayed from another low powered outlet off FM.

The recent World Cup in South Africa had extensive live coverage on shortwave which was much more than that of the Olympics. Even if you could not understand the languages, the ever present African trumpet-horns were easily heard despite the best efforts of attempting to filter them out.

Well that is all I can report for now. I am hamstrung by this continual problem with my hearing and do look forward to the time when this rushing, ringing sensation will be gone. Until them, the very best of 73. VK7RH.

DXnews & views

continues from page 48

Vasilliy D2QMN. Valeriy has been issued D2QV. No other details at the moment.

Vincent F5MJV will be stationed in Djibouti "at least until 2011, and more probably until 2012", F5NQL reports. He will be active as J28JV on the HF bands, mainly CW and digital modes with some SSB, initially during his weekends (Friday and Saturday), then, once he has settled down, also during his evening hours. Weekend activities from IOTA group AF-053 (Moucha Island) are in Vincent's plans, but unfortunately he will not be able to operate from the much rarer AF-059 group. QSL via F5NQL, direct or bureau.

Vanuatu 2010 DXpedition News

In co-operation with ODXG, a group of four Australian amateurs will be activating Vanuatu (YJ0) from 27 August until 2 September. The accommodation and flights are booked and the team are waiting on callsign allocation from the Vanuatu government. Chris VK3QB (Leader), Allan VK2CA, Luke VK3HJ and Brenton VK3CBV will spend six days and nights working the HF bands from the island of Efate – as well asenjoying some of the sites of this beautiful country. The team plans to keep things simple with two HF stations limited to 100 watts and vertical and wire dipole antennas. For more information please contact Chris VK3QB vk3qb@wia.org.au

• Katsumi JF1OKX will begin operating from Lusaka with the callsign 9J2KK from the first part of July and stay there until September 2011 He will be working 80 - 6 metres with digital modes (PSK31/62, RTTY/WSJT/SSTV) with some SSB/CW. QSL via JK1NSR.

• 9XØCX - This is Fraser MMØEFI, who is reported active on HF using mostly PSK31 and some SSB. It is not known how long Fraser will be in Rwanda. QSL per his instructions.

Patrick ON4HIL plans to be QRV with a specially requested call 9Q50ON (Nine Quebec Five Zero Oscar November) from Kinshasa, Democratic Republic of Congo in celebration of Congo's 50 year independence anniversary. This is a reconnaissance operation in hopes for a bigger operation by ON Amateur Radio operators in the future. QSL via ON4BR.

Good luck in the pile-ups until next month.

Special thanks to the authors of The Daily DX (W3UR) -- 425 DX News (I1JQJ) and QRZ.DX for information appearing in this month's DX News & Views. For interested readers you can obtain from W3UR a free two-week trial of The Daily DX from www.dailydx.com/trial.htm

Gridsquare Standings

at 11 June 2010

Guy Fletcher VK2KU

144 MHz Terrestrial

VK3NX	Charlie	106
VK2KU	Guy	102
VK3PF	Peter	88
VK3HZ	David	87
VK2ZT	Steve	80 SSB
VK2ZAB	Gordon	78 SSB
VK5AKK	Phil	78 SSB
VK2DVZ	Ross	77 SSB
VK3PY	Chas	73 SSB
VK3BDL	Mike	65 SSB
VK7MO	Rex	64
VK2EI	Neil	63
VK3QM	David	63 SSB
VK2TK	John	62
VK2MER	Kirk	61 SSB
VK3BJM	Barry	61 SSB
VK4FNQ	John	59
VK4FNQ	John	58 SSB
VK3II	Jim	56
VK3II	Jim	55 SSB
VK3WRE	Ralph	55 SSB
VK5BC/p	Brian	55 SSB
VK2AMS	Mark	54 SSB
VK3PF	Peter	54 SSB
VK5BC	Brian	53 SSB
VK3ZLS	Les	51 SSB
VK4CDI	Phil	49
VK3HY	Gavin	48
VK3VG	Trevor	46 SSB
VK7MO	Rex	46 SSB
VK4CDI	Phil	45 SSB
VK7MO	Rex	44 Digi
VK4KZR	Rod	43
VK4TJ	John	40 SSB
VK3PF	Peter	39 Digi
VK2TK	John	35 SSB
VK2KOL	Colin	34 SSB
VK3DMW	Ken	34
VK6HK	Don	34
VK2TG	Bob	33 SSB
VK3EJ	Gordon	33 SSB
VK3ZUX	Denis	33 SSB
VK1DA/p	Andrew	31
VK1WJ	Waldis	27
VK2TK	John	27 Digi
ZL3TY	Bob	24
VK3TLW	Mark	23 SSB
VK4EME	Allan	23
VK1WJ	Waldis	22 Digi
VK3BG	Ed	22 SSB
VK3II	Jim	21 Digi
VK4CDI	Phil	21 Digi
VK3ECH	Rob	20 SSB
VK6KZ	Wally	20
VK4EME	Allan	19 SSB
VK3AL	Alan	18 SSB
VK6KZ/p	Wally	16
VK4EME	Allan	12 Digi
VK2EI	Neil	11 Digi
VK2KOL	Colin	9 Digi
VK2ZT	Steve	9 Digi
VK1WJ	Waldis	6 SSB
VK6HK	Don	6 Digi
VK1WJ	Waldis	5 CW
VK4AE	Denis	5 SSB
VK2AMS	Mark	4 Digi
VK4JAZ	Grant	4 FM
VK2DVZ	Ross	2 Digi
VK3QM	David	1 Digi
VK4FNQ	John	1 FM

144 MHz EME

VK2KU	Guy	384
ZL3TY	Bob	373
VK2KU	Guy	370 Digi
VK3AXH	Ian	265 Digi
VK4CDI	Phil	205 Digi
VK7MO	Rex	155 Digi
VK2KU	Guy	43 CW
VK3DDU	Paul	39 Digi
VK2ZT	Steve	28 Digi
VK3HZ	David	19
VK3II	Jim	14 Digi
VK3NX	Charlie	5 CW
VK4EME	Allan	5 Digi
VK3AXH	Ian	3 CW
VK2DVZ	Ross	2 CW
VK3AXH	Ian	1 SSB

432 MHz Terrestrial

VK2ZAB	Gordon	57 SSB
VK3NX	Charlie	50
VK3PY	Chas	50 SSB
VK3NX	Charlie	48 SSB
VK3QM	David	48 SSB
VK3ZLS	Les	40 SSB
VK2KU	Guy	38
VK3BJM	Barry	38 SSB
VK3HZ	David	38
VK5AKK	Phil	38 SSB
VK2DVZ	Ross	34 SSB
VK2ZT	Steve	32 SSB
VK3BDL	Mike	32 SSB
VK3WRE	Ralph	32 SSB
VK3PF	Peter	30
VK3PF	Peter	29 SSB
VK5BC	Brian	26 SSB
VK1DA/p	Andrew	24
VK2MER	Kirk	24 SSB
VK3VG	Trevor	20 SSB
VK5BC/p	Brian	20 SSB
VK7MO	Rex	20
VK2TK	John	18
VK7MO	Rex	18 SSB
VK2AMS	Mark	17 SSB
VK2TK	John	17 SSB
VK3BG	Ed	15 SSB
VK3TLW	Mark	15 SSB
VK3ZUX	Denis	15 SSB
VK4KZR	Rod	15
VK4CDI	Phil	14
VK4CDI	Phil	14 SSB
VK6KZ	Wally	13
VK2EI	Neil	12 SSB
VK2KOL	Colin	12 SSB
VK4TJ	John	11 SSB
VK2TG	Bob	10 SSB
VK3AL	Alan	10 SSB
VK3ECH	Rob	10 SSB
VK4FNQ	John	10 SSB
VK6KZ/p	Wally	8
VK7MO	Rex	7 Digi
VK3DMW	Ken	6
VK4EME	Allan	6 SSB
VK1WJ	Waldis	4 SSB
VK3PF	Peter	4 Digi
VK3PY	Chas	4 Digi
VK3QM	David	4 Digi
VK4CDI	Phil	4 Digi
VK2ZT	Steve	3 Digi
VK4AIG	Denis	3 SSB
VK4JAZ	Grant	3 FM
VK2DVZ	Ross	1 Digi
VK2KOL	Colin	1 Digi
VK2TK	John	1 Digi

432 MHz EME

VK4CDI	Phil	26 Digi
VK4KAZ	Allan	14 CW
VK4EME	Allan	10 Digi
VK7MO	Rex	10
VK7MO	Rex	9 Digi
VK3NX	Charlie	5 CW
VK3AXH	Ian	4 Digi
VK3HZ	David	4
VK2ZT	Steve	2 Digi
VK4EME	Allan	1 CW
VK5BC	Brian	1

1296 MHz Terrestrial

VK3PY	Chas	39 SSB
VK3QM	David	39 SSB
VK3NX	Charlie	37 SSB
VK2ZAB	Gordon	29 SSB
VK3ZLS	Les	26 SSB
VK2DVZ	Ross	25 SSB
VK2KU	Guy	25
VK5AKK	Phil	24 SSB
VK3PF	Peter	20
VK3BJM	Barry	19 SSB
VK3KWA	John	19
VK3PF	Peter	19 SSB
VK3BDL	Mike	17 SSB
VK3HZ	David	17
VK3WRE	Ralph	17 SSB
VK2ZT	Steve	12 SSB
VK3VG	Trevor	12 SSB
VK4KZR	Rod	12
VK3BG	Ed	11 SSB
VK5BC	Brian	11 SSB
VK7MO	Rex	11 SSB
VK1DA/p	Andrew	10
VK2TK	John	10 SSB
VK5BC/p	Brian	9 SSB
VK3TLW	Mark	8 SSB
VK2AMS	Mark	7 SSB
VK3AL	Alan	7 SSB
VK3DMW	Ken	7
VK2MER	Kirk	6
VK3ECH	Rob	6 SSB
VK3ZUX	Denis	5 SSB
VK4TJ	John	5 SSB
VK6KZ/p	Wally	5
VK4CDI	Phil	4
VK4CDI	Phil	4 SSB
VK6KZ	Wally	4
VK4EME	Allan	3 SSB
VK7MO	Rex	3 Digi
VK3PF	Peter	2 Digi
VK3QM	David	2 Digi
VK4AIG	Denis	2 SSB
VK4FNQ	John	2 SSB
VK4CDI	Phil	1 Digi
ZL3TY	Bob	1 SSB

1296 MHz EME

VK3NX	Charlie	50 CW
VK4CDI	Phil	36
VK4CDI	Phil	36 Digi
VK7MO	Rex	30
VK7MO	Rex	27 Digi
VK4CDI	Phil	3 CW

2.4 GHz Terrestrial

VK3PY	Chas	18 SSB
VK3NX	Charlie	17 SSB
VK3QM	David	17 SSB
VK3WRE	Ralph	11 SSB
VK3PF	Peter	7 SSB
VK3HZ	David	5
VK4KZR	Rod	4
VK6KZ	Wally	4
VK3BJM	Barry	3 SSB
VK1DA/p	Andrew	2
VK2AMS	Mark	2 SSB
VK3PF	Peter	2 Digi
VK2DVZ	Ross	1 SSB
VK2EI	Neil	1 SSB
VK3BG	Ed	1 SSB
VK3TLW	Mark	1 SSB
VK3ZUX	Denis	1 SSB

2.4 GHz EME

VK3NX	Charlie	36 CW
VK7MO	Rex	9
VK7MO	Rex	7 Digi

3.4 GHz Terrestrial

VK3NX	Charlie	14 SSB
VK3QM	David	14 SSB
VK3WRE	Ralph	8 SSB
VK3PF	Peter	6 SSB
VK6KZ	Wally	4

3.4 GHz EME

VK3NX	Charlie	16 CW

5.7 GHz Terrestrial

VK3NX	Charlie	14 SSB
VK3QM	David	12 SSB
VK3WRE	Ralph	9 SSB
VK3PY	Chas	8 SSB
VK3PF	Peter	7 SSB
VK6KZ	Wally	4
VK3BJM	Barry	2 SSB
VK3PF	Peter	2 Digi
VK6BHT	Neil	2 SSB
VK3ZUX	Denis	1 SSB

5.7 GHz EME

VK3NX	Charlie	18 CW

10 GHz Terrestrial

VK3PY	Chas	15 SSB
VK3NX	Charlie	14 SSB
VK3QM	David	14 SSB
VK3HZ	David	9
VK3PF	Peter	9 SSB
VK3WRE	Ralph	9 SSB
VK6BHT	Neil	9 SSB
VK2EI	Neil	6
VK6KZ	Wally	5
VK2EI	Neil	3 Digi
VK3TLW	Mark	3 SSB
VK3BJM	Barry	2 SSB
VK3DMW	Ken	2
VK3ZUX	Denis	2 SSB
VK4KZR	Rod	2
VK7MO	Rex	2
VK1DA/p	Andrew	1
VK3BG	Ed	1 SSB

10 GHz EME

VK3NX	Charlie	15 CW

24 GHz

VK6BHT	Neil	3 SSB
VK2EI	Neil	2 SSB
VK3NX	Charlie	2
VK6KZ	Wally	2

474 THz

VK3WRE	Ralph	3
VK3HZ	David	2
VK7MO	Rex	2
VK7MO	Rex	2 Digi
VK7TW	Justin	2
VK7TW	Justin	1 Digi

Additions, updates and requests for the guidelines to Guy VK2KU.

The guidelines (and the latest League Table) are also available on the VK VHF DX Site at http://vhfdx.radiocorner.net - click on Gridsquares.

Next update of this table will close on or about 15 October 2010.

Stations who do not confirm their status for more than 12 months may be dropped from the table.

WIA Centenary Award

A limited issue operating award is available to celebrate the 100th year of the Wireless Institute of Australia (WIA), the world's oldest national radio society.

To qualify for an award contact is required with the Centenary of Organised Amateur Radio in Australia special event station VK100WIA. A distinctive QSL will be available.

The WIA, through its affiliated radio clubs, will operate this unique callsign from 1 May to 31 October 2010. The callsign was used in Canberra, at the WIA Annual General Meeting and associated events on 28-30 May.

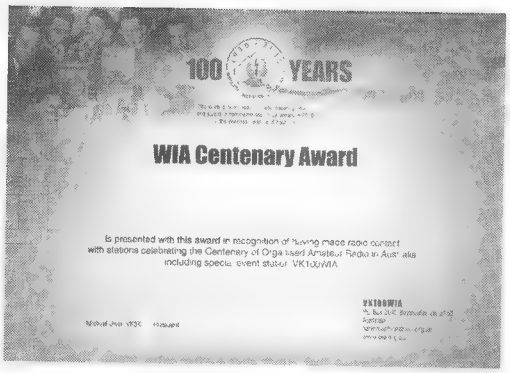
It will be on all amateur bands available to VK radio amateurs including the popular HF bands.

The award rules are: Those radio amateurs outside Australia need to achieve 50 points while VK hams require 100 points.

A contact with VK100WIA operated by the WIA or a Club is worth 10 points (only one contact with VK100WIA operated by the WIA and only one contact with each Club) and there must be a minimum of two contacts with VK100WIA.

Contacting any WIA member between 1st May 2010 and 31 October 2010 is worth five points (Example: working VK100WIA at 10 different Clubs would be eligible for the award. Working 16 WIA members gives 80 points but then two contacts must be made with VK100WIA).

Any mode may be used; cross-mode and cross-band contacts are permitted. Satellites and repeater



contacts are permitted. Send AU$5 or 3 IRCs and a list of contacts (QSLs not required) to the Awards Manager WIA Centenary Award, PO Box 2042, BAYSWATER VIC 3153 AUSTRALIA.

Listen around the bands or visit the WIA website www.wia.org.au for frequent updates of the operator club's roster. **ar**

Hamadsclassifieds free to members

FOR SALE – VIC

Tape deck, reel-to-reel, stereo, Akai focussed field, GX-4000D, $300.00. Tape deck, reel-to-reel, stereo, Akai custom deck, X-100D, $300.00. Both items are pick up only.
Terry VK3YJ, on phone 03 9315 0186.

WANTED - QLD

Kantronics Paket Communicator 3, in good working order, or similar model Paket modem. Contact Tom VK4TY on 07 3396 5944 or 0428 159 164, or tyapp@ozemail.com.au

FOR SALE – SA

Are you serious about improving your HF antenna efficiency? The VK5JST Antenna Analyser kits are still available. See AR article May, 2006 and www.eHam.net reviews. Build yourself an extremely useful item for your shack. For more details see www.scarc.org.au
Contact SCARC, PO Box 333, Morphett Vale. SA. 5162, or email kits@scarc.org.au

WANTED - SA

Murphy B41 LF receiver (ex RAN?) – must be in good working condition. Freight costs will, of course, be met. Other boat anchor types of LF receiver considered.
Peter Whellum VK5ZPG, Lot 366 Schmidt Road (Box 390), Quorn. SA. 5433. Phone 08 8648 6508 (reverse charge is OK) or email pwhellum@bigpond.com

WANTED – WA

IC-7000 or IC-706Mk2G HF/VHF/UHF transceiver, in excellent condition, with manual, power leads and microphone, and preferably with the head separation cable.
Contact Steve VK6VZ at vk6vz@arach.net.au

ABOUT HAMADS

- Submit by **email (MUCH PREFERRED)** or on the **form on the reverse of your current Amateur Radio address flysheet**. Please print carefully and clearly, use upper AND lower case.
- Deceased estates Hamads will be published in full, even if some items are not radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from those who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising on these pages Contact admanager@wia.org.au.
- Copy to be received by the deadlines on page 1 of each issue of Amateur Radio.
- Separate forms for For Sale and Wanted items. Include name, address STD telephone number

'Hamads' PO Box 2042 BAYSWATER VIC 3153
hamads@wia.org.au

HF, VHF, UHF ANTENNAS & ACCESSORIES
Aluminium towers, guys etc
Diamond VSWR/PWR meters.
HD copper antenna wire & insulators, TX tubes & pwr transistors,
Range of Create Rotators
Quality coax cables & connectors. Free advice & catalogue.
ATN Antennas
Ph 03 5492 2224 Fax 03 5492 2666,
email atnant@iinet.net.au
PO Box 80, Birchip Vic 3483
(37 Morrison St. Birchip)

ADVERTISERS INDEX

ATN 54
Av-Comm 55
Bookshop ..... Fly
Com-an-tena 7
Cookson (Jackson Bros) 55
Hamak Electrical Industries 55
Icom ..... OBC
Jaycar 22
Ludatronics 55
Measurement 55
Merchandise ..... IBC
RF Tools 55
SADARC 55
Tet Emtron 13
Tower 55
TTS ..... 33 and 55
Vertex (Yaesu) ..... 16 & IFC
VKHam 55

TRADE PRACTICES ACT
It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

VICTORIAN CONSUMER AFFAIRS ACT
Advertisements with only a PO Box number address and WIA membership number cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

RM Products Italy

are now available in Australia after the appointment of

Hamak Electrical Industries Pty Ltd

as distributor for RM products

Visit the Hamak website at

Hamak.com.au

for

Linear amplifiers, Power supplies and accessories

VKHAM.COM

AUSTRALIAN AMATEUR RADIO

Hundreds of pages and links related to Amateur Radio and radio in general

Home of

- VK Classifieds
- VK Auctions
- VKs on the Internet

Repeater Maps, Software, Prefix Maps and more...

WIRELESS INSTITUTE OF AUSTRALIA

If you run a small

Home-Based Business

related to

Amateur Radio

these pages are the ideal spot to advertise.

The rates for these pages are structured to encourage just such businesses.

03 9729 0400

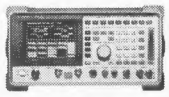
or email at

admanager@wia.org.au

for full information.

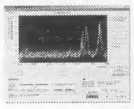
The three immutable rules of Small Business Success:

- **Nothing happens until someone sells something.**
- **"Early to bed, early to rise, work all hours, AND ADVERTISE**
- **Get the Money**



RF Tools is PC software that transforms your 8920, 8921 or 8924 RF Comms Test Set into a multi-purpose RF analyser.

- Cable Fault Location (TDR)
- Interference Monitoring
- Signal Strength Logging
- Antenna Return Loss
- Diplexer Insertion Loss
- Screen Capture



Special discounted price for licensed hams.

www.measurement.net.au

JACKSON BROS

www.jacksonbrothers.com.au

Highest quality products made by UK craftsmen

Variable and trimmer capacitors, reduction drives, dials, ceramic standoffs

CATALOGUES, PRICE LISTS AVAILABLE

HAMMOND ENCLOSURES

HAMMOND MANUFACTURING *Large range of quality electronic enclosures for the discerning Radio Amateur.*

Diecast, extruded aluminium and plastic enclosures and instrument cases. As seen in many ARRL projects.

Cookson Controls CHARLES I COOKSON PTY LTD

11-13 Port Rd Queenstown SA 5014

Tel: (08) 8240 3200 Fax: (08) 8240 3233

sales@jacksonbrothers.com.au

ccookson@hammfg.com

ALL MAJOR CREDIT CARDS ACCEPTED

SOLE AGENTS AUSTRALIA AND NEW ZEALAND

Tower Communications

Authorised dealer for the worlds leading brands

Vertex Standard

(Yaesu)

ICOM

14 Mary Street, Hazelmere, Western Australia, 6055

08 9274 1118

fax 08 9250 3734

john@towercom.com.au

Visit our website to see ALL our famous names

www.towercom.com.au

'we ship Australia-wide'

LudaTronics AOYUE

Soldering, De-Soldering & Re-Work Stations at Amazing Prices!!

full manufacturer's backup

See all our products at:

www.ludatronics.com.au

E-Mail: sales@ludatronics com.au

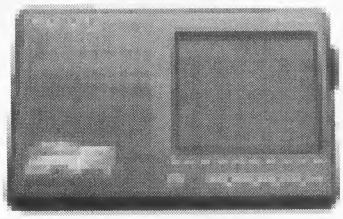
Tel. 07 3385 7629

Fax. 07 3385 7625

Call Roger VK4TV (ex VK4UPS) and discuss your requirements

DEGEN 1103 HF Receiver

Pocket sized, 100 kHz-29,999Khz



LCD display, SSB, AM wide/narrow, FM stereo, DX/Local, 10 m longwire NimH batts & charger, earphone & carrycase included. Full review Silicon Chip Dec 2006

ONLY $159 with 12 month warranty

Av-Comm Pty Ltd

24/9 Powells Rd

Brookvale NSW 2100

Tel: 02 99394377

Fax: 02 99394376

www.avcomm.com.au

Precision Broadband Antennas for commercial RFI/EMC and ham-radio

HyperLOG Examples:

700MHz - 2.5GHz	$295 +GST
700MHz - 4.0GHz	$395 +GST
400MHz - 2.5GHz	$595 +GST
400MHz - 6.0GHz	$995 +GST

...many more models, up to 18GHz

- Broadband Receive & Transmit (≤100W)
- Standard 1/4" camera-tripod mount
- Rugged SMA(f) RF connector
- Precision design for RSS/RFI/EMC
- Antenna Factors (for field-strength V/m)
- Pistol-grip/mini-tripod & case included
- 10-year warranty; Made in Germany

www.measurement.net.au

DIRECTORY

100 YEARS 1910 ~ 2010 WIRELESS INSTITUTE OF AUSTRALIA

The Amateur Service:

... a radio communications service for the purpose of self training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique with a personal aim and without any pecuniary interest. 56 ITU Radio Regulations.

National Office
Unit 20, 11-13 Havelock Road
PO Box 2042 BAYSWATER VIC 3153

Contact 10 am to 4 pm daily
Phone 03 9729 0400 Fax 03 9729 7325
nationaloffice@wia.org.au http://www.wia.org.au

Advisory Committees

Chairman of the regional committee is in bold.

New South Wales and ACT
Email vk2advisory@wia.org.au
Alan Hawes VK1WX (02) 6258 2568
Owen Holmwood VK2AEJ
Dominic Dahl VK2YDD
Col Christiansen VK2BCC

Victoria
Email vk3advisory@wia.org.au
Bryan Pliatsios VK3HXR 0403 604 242
Lee Moyle VK3GK
Noel Ferguson VK3FGN
Mark Stephenson VK3PI

Queensland
Email vk4advisory@wia.org.au
Don Wilschefski VK4BY (07) 4928 0065
Kevin Johnson VK4UH
JR (Ross) Anderson VK4AQ
Harvey Wickes VK4AHW

South Australia
Email vk5advisory@wia.org.au
David Box VK5DB (08) 8532 1605
Peter Reichelt VK5APR
Paul Hoffman VK5PH
Ben Broadbent VK5BB

Western Australia
Email vk6advisory@wia.org.au
John Howlett VK6ZN 0427 380 118
Neil Husk VK6BDO
Robert Bristow VK6POP
Steve Wellington VK6FSWR

Tasmania
Email vk7advisory@wia.org.au
David Potter VK7YUM (03) 6395 4400
Clayton Reading VK7ZCR
Jason Reilly VK7ZJA
Peter Rumble VK7IY/VK4KX

Northern Territory
Email vk8advisory@wia.org.au
Garry Woods VK8GW (08) 8983 1620
Alan Baker VK8AB
Trevor Wardrope VK8TJW
Wayne Cockburn VK8ZAA

The GARC from page 36

useful in establishing DX contacts.

Although the HF bands were somewhat flat over the weekend they managed to work a couple of other museum sites one of which was HMAS Castlemaine VK3RAN. Contacts were made with west coast USA on 20 m and also on 2 m using the IRLP node; as well as a dozen contacts on 160 m. The museum will allow the club to attach an oregon mast to the Marconi hut that will be used to fly a flag for the museum but will facilitate an easier means of antenna erection at future events.

Craig VK3VCB positioning the 2 m beam

The Big Morning Tea for the Cancer Council Charity

With many other similar Big Morning Tea events in the City of Geelong, the GARC ladies organised and promoted their own contribution to this worthwhile charity.

The sum of $513 was raised on the day. Whilst Vanessa VK3FUNY could not personally thank all those that contributed to the days' events with the organising, catering and decorating, she extended special thanks to Jenni VK3FJEN who generously donated items that were raffled off.

Solstice Dinner

Last year the dinner was held at the GARC Club House in Storrer Street in conjunction with the GRES. This year the Solstice dinner was held at the club house of the Geelong Radio and Electronics Society (the GRES) in Belmont, Geelong.(See GRES notes page 40.

ar

100 YEARS

Centenary Merchandise

Celebrate the Centenary in style

To help members celebrate the WIA Centenary, a range of 'limited edition' Centenary merchandise is now available for online purchase via the Centenary Merchandise section of the WIA website.

The merchandise below sports the WIA 100 Years Centenary logo and is being expanded to include many other commemorative items and memorabilia. Members are encouraged to keep an eye on the WIA website for all the latest products. Visit **www.wia.org.au** and click the Centenary logo on the right hand side of the home page.

All shirts and jackets are available in the following sizes: Small, Medium, Large, X-Large, XX-Large, XXX-Large.

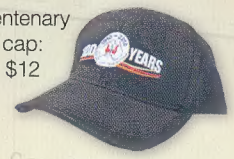
Please note: all prices below are WIA member prices and are inclusive of GST, delivery charges are calculated with your online order.

Centenary polo shirt: $25

Centenary tie/ jacket pin: $8

Centenary logo sew on patch: $8

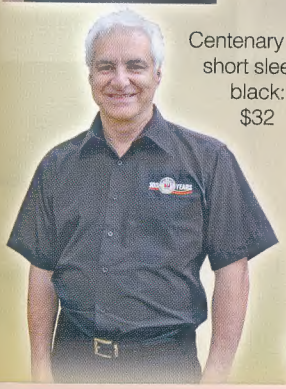
Centenary bucket hat: $12



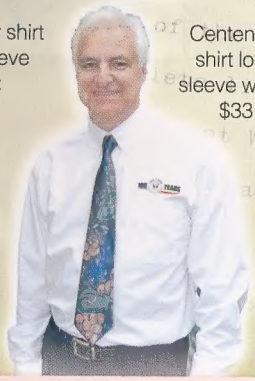
Centenary cap: $12

WIA Centenary poster A1 size: $10

WIA Calling CQ poster A1 size: $10



Centenary shirt short sleeve black: $32



Centenary shirt long sleeve white: $33

Centenary shirt long sleeve black: $33

Centenary fleecy vest: $35

Centenary ranch jacket: $94

Genuine

Icom (Australia) 5 Year Warranty*

Don't risk your valuable equipment.
Beware of imported products.
Insist on a GENUINE Icom (Australia) 5 Year Warranty.

ONLY products purchased through **AUTHORISED** Icom (Australia) Amateur dealers carry a **GENUINE** Icom (Australia) 5 Year Warranty.

For a list of authorised dealers, visit **www.icom.net.au**

Amateur

ID-880H

DIGITAL | D-STAR

ICOM

ICOM 413

Contact Icom direct for more information
www.icom.net.au or (03) 9549 7500

* From the date of purchase, (excluding accessories), from an Australian authorised Icom dealer, provided a warranty registration is received by Icom (Australia), with all fields completed and legible. The 5 year warranty shall only apply if the unit is purchased on or after November 11, 2009

Volume 78 Number 8 AUGUST 2010 Print Post Approved PP349181/0042